DOCUMENT RESUME

ED 225 889 SO 014 451

AUTHOR	Schwarz, Samuel; Greenfield, Harry I.
TITLE	An Econometric Model of the Performing Arts. Final Report.
INSTITUTION	Center for Policy Research, New York, N.Y.
SPONS AGENCY	National Endowment for the Arts, Washington, D.C.
PUB DATE	Jun 77
CONTRACT	NEA-C-164
NOTE	151p.; Not available in paper copy due to marginal legibility of original document. Some figures and tables may not reproduce clearly in microfiche.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Cost Effectiveness; *Economic Research; Models; Musicians; *Orchestras; Research Methodology; *Theater Arts; Theories; Trend Analysis
IDENTIFIERS	*Econometrics; Ford Foundation

ABSTRACT

An effort was made to construct and apply an econometric model to explain selected trends and characteristics of symphony orchestras, based on data for the years 1949-75 from 17 major orchestras belonging to the American Symphony Orchestra League. The average length of the playing season increased from about 26 to 49 weeks during the period of the study, with the average number of concerts increasing from 104 to over 180. Real (inflation-adjusted) salaries increased by about 50 percent, most of the increase occurring in the 1950's and 1960's. Average real ticket prices increased, as did real per capita contributions and admissions per capita. Despite these increases and an $80 million Ford Foundation Symphony Program begun in 1966 primarily to build up symphony endowment funds, the orchestras had to finance deficits out of endowments to the extent of $82 million. The demand for tickets is apparently inelastic, so that high prices would increase revenues more than they would reduce attendance; but orchestras are reluctant to greatly increase prices, fearing that this would damage their public image and reduce contributions. (IM)

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ED225889

AN ECONOMETRIC MODEL OF THE PERFORMING ARTS

Final Report

Prepared for:

Research Division
National Endowment for the Arts

In accordance with:

Contract No. NEA C 164

Samuel Schwarz
Harry I. Greenfield

Center for Policy Research
New York, New York
June 1977

SP 024 457

Preface

This study was done under contract to the National Endowment for the Arts (#NEA C 164) as a "model study for an economic data program on the condition of arts and cultural institutions." At the outset we set stringent quality requirements for our work.

Knowing (1) that results are only as good as the data from which they are derived, and (2) the poor quality and/or short-term nature of the arts data in existence, we first created a long-term, detailed data base -- probably the first of its kind -- drawing upon the raw data collected by the American Symphony Orchestra League (ASOL).

This process provided an additional benefit: although we relied primarily on the works of Baumol and Bowen and Hart for an understanding of the behavior of the major orchestras, and the underlying institutional phenomena which affect them, we nevertheless, in the course of setting up our data base, discovered some yet unrealized phenomena or further evidence of those previously realized. We, then, turned to observers of the field for further clarification which provided further feedback into our comprehension of the the underlying structure, without which, we believe, no study is complete.

With a data base in hand, the strengths and weaknesses of which we knew, a good grasp of the institutional structure and a very general model of the economic behavior of arts organizations, we undertook a complete analysis of the major orchestras. Our approach can serve as a framework for the future study of other art forms which, unfortunately, the data in their present form, did not allow us to do.

In short, we conducted the study under strict academic standards: the acquisition of knowledge can not be terminated at deadlines. Fortunately, we had the complete cooperation and understanding of Messrs. Harold Horowitz and David Waterman, Project Officer and Research Economist at the NEA, who, in fact, encouraged our efforts, and we are most grateful to them.

We were also fortunate in obtaining the complete cooperation of many persons in the arts field, especially Mr. Richard C. Sheldon and Ms. Rita K. Roosevelt of the Ford Foundation; Mr. William Nelms of the American Symphony Orchestra League; Messrs. Stephen Benedict and John Spencer of the NEA and the many museum directors who went out of their way to provide us with otherwise inaccessible data.

We are also grateful to the following members of the academic community for valuable comments and advice: Drs. Michael Hurd of Stanford University, Yale Braunstein of N.Y.U., and, especially, Albert Madansky of the University of Chicago.

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CHAPTER I

ECONOMIC THEORY AND THE PERFORMING ARTS: AN OVERVIEW

Our approach to the performing arts is to view them as subsectors of a larger rubric, namely the nongovernmental, not-for-profit sector of the economy. For purposes of the present study, we are not concerned with the question of why such organizations or "firms" exist, but rather to attempt to understand how they function as economic entities within the economy as a whole and, additionally, to determine how they react to changes in the broader macroeconomic aggregates.

Economic theory with respect to the profit sector is well established. Entrepreneurs seek to maximize profits and they attempt to do so by producing an output at the point where marginal costs are equal to price (under competition) or where marginal costs are equal to marginal revenue under less than perfectly competitive market structures. This theory of market behavior can and has been modified to account for situations where nonmonetary variables (power, prestige, etc.) are present but the basic model remains fairly intact.

However, the market-oriented model does not apply in a strict sense to a second sector of the economy, namely the governmental sector and a large economic literature has developed which seeks to analyze the determinants of the behavior of governmental units. The most underdeveloped area, so far as economic analysis is concerned, is the third sector, i.e., that of nongovernmental, not-for-profit firms and the performing arts subsector is, in turn, one of the least understood of the many diverse kinds of firms of which the sector as a whole is comprised.

The contrast between the large (and growing) amount of studies in the health subsector with the paucity of studies in performing arts is very great. Yet there are many similarities between the economic behavior of performing arts organizations and non-profit (voluntary) hospitals. For one thing, both "firms" produce services rather than goods and in both there are great difficulties in measuring the "outputs" either quantitatively or qualitatively. It may be useful to add here that whereas in hospital care both consumption and investment elements are present, in the performing arts, the output may be considered to be wholly consumption-oriented. Both types of firms sell their "output," in the former via patient charges and in the latter via ticket prices. Both are labor intensive in that wages constitute the greater proportion of total costs.

To pursue our analogy a bit further, in both the hospital and performing arts cases, it is difficult to specify what it is precisely that management wishes to maximize or to optimize. For short-term hospitals one might postulate several such variables: patient days of care; hospital size; hospital 'prestige'; income of administrators; income of physicians and so on. In the performing arts (treating them for the moment as a homogenous entity) one might postulate the following as maximands: organizational prestige; income of performers; attendance; educational services; size; diversity of output (e.g., number of new symphonies, operas, ballets, or plays per season, etc.).

Despite the fact that their output is sold, hospitals and performing arts firms generally end their annual operations with expenditures greater than their income -- an "earnings gap." The gap is filled by contributions, a form of income available only to non-profit firms. The size of the gap is determined by the level of output which contributions will maintain. Since the demand curve is downward-sloping, additional output must be sold at a much lower price, thus producing a greater difference between income and costs.

A fundamental economic factor present in all services in general and in the performing arts in particular is the notion that productivity increases lag behind productivity increases in the goods-producing component of total output. The potential for substituting capital for labor is limited, hence productivity (output per unit of input) rises slowly, if at all. The consequence of this lag is that wages in the rest of the economy will rise generally in proportion to productivity increases, these wage increases will affect wages in the performing arts, which will (after a lag) also rise (union militancy and contributions may accelerate this trend thus reducing the lag). Hence, at a given level of output, total costs will rise for arts "firms" and with no concomitant increases in productivity as an offset, the gap between income and expenditures will inevitably increase.*

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* Baumol and Bowen appear to have been the first writers to apply this thesis to the arts in their Performing Arts -- The Economic Dilemma, New York, The Twentieth Century Fund, 1966, especially in Chapters VI through XII.

In addition, we have previously seen that the gap can be increased by raising the level of output, a major source of the growing gap in recent years for the major orchestras, for example.

Mindful of these differences in the theoretical approach to the profit and to the not-for-profit sectors, we set out, in the next chapter, a very general model of the behavior of arts organizations and discuss methods of its estimation and the data available. In Chapter III, we apply the model to our data base on the major orchestras. Finally, in Chapter IV, we summarize our conclusions and make some suggestions for future research, data needs and forecasting.

CHAPTER II

THE MODEL AND THE DATA

I. INTRODUCTION

In this chapter, we attempt to define the relationship between general economic conditions and the condition of the arts via the setting up of an econometric model. We are, therefore, dealing with conditions in the "industry," rather than of an individual "firm" in the industry. As in all of economic theory, aggregate behavior is derived from the behavior of its components. We first derive a theory of the behavior of an art "firm," and from that the behavior of the "industry."

II. A THEORY OF THE ECONOMIC BEHAVIOR OF ARTS ORGANIZATIONS

The arts organizations ("firms") are 'benevolent' monopolists. Although they control price, they are in the not-for-profit sector. As such, their goal is not profit maximization but the dissemination of their services to the widest audiences, subject to (1) their individual budget constraints and (2) maintaining, or increasing the present quality of their productions. For example, a symphony orchestra is not likely to switch to popular music, even though it could increase its audience immensely.

In addition, they have a source of revenue other than from the price of their output: contributions which fill the "earnings gap"--i.e., the difference between expenditures and receipts. If expenditures had to be covered solely by ticket receipts, artistic performances would be priced out of the reach of most consumers and attendance would be limited to a select group. Each arts firm must, therefore, balance its expenditures, revenue and contributions--not on a year-by-year basis, but on a long-run basis, i.e., it cannot allow its deficit to accumulate indefinitely.* Its constraint is:

$$\sum_{n \text{ years}} E_i - R_i - C_i = 0$$

where:

E_i = total expenditures for the i^{th} firm

P_i = total receipts for the i^{th} firm

C_i = total contributions to the i^{th} firm

The unique position of such a firm allows it many ways by which to attain its balance. It can increase prices, cut back output, hold the lid on wage increases, etc. We will next examine how its expenditures, revenue and contributions are determined.

A. Expenditures

Total expenditures consist of two components: artistic labor-costs and the costs of other inputs (which include non-artistic labor). Total expenditures are determined solely by total income (receipts and contributions) because of the firm's budget constraint. Hence, if total income goes down, total expenditures must go down. Or if the costs of its inputs go up, it must either raise its income, or cut back on its output. We will, therefore, look first at what determines the firm's output.

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*It should be noted that this long-run may span several decades, especially when the organization has an endowment corpus. For example, in the past decade, the major orchestras have been closing their deficits by dipping into their accumulated endowments.

Total output depends on the costs of the factors of production--the wage-rate of artistic labor and the prices of other inputs. We can lump these latter prices into one average price and since we don't know the specific prices of all the other inputs, we assume that they move with the general price level. In addition, the level of expenditures depends on the total income of the firm, i.e., with the same wage rate and prices, a firm with an annual income of $1 million will spend more than one with a half million annual income.

We measure output by its value, i.e., real expenditures, which means that we must deflate total expenditures by an index of costs. In the arts, however, artistic wage rates do not move directly with the prices of other inputs, for which we use the general price level as a "proxy." We use, instead, a weighted combination of the wage rate and the price level--the weights being the fractions of total expenditures going to wages and other inputs. A change in real expenditures may include a change in quantity--e.g., length of season--or in quality of inputs, so that in this formulation we need not be concerned about measuring quantity or quality--an unresolved difficulty in the services in general and in the arts particularly. We, therefore, have a "supply" function of the arts firm, with output measured by its value;*

$$e_i = e_i\ (W_a,\ P,\ TI_i) + U_{ei} \tag{1}$$

where:

e_i = real expenditures of the i^{th} firm

W_a = artistic wage rate

P = general price level

TI_i = total income of the i^{th} firm

U_{ei} = random error term

The wage rate in the arts refers not only to the hourly or weekly wage rate, but also to the amount of weeks for which a player must be paid. We will see later that, as a result, labor determines the level of output to a large extent.

Our next problem is: how do we measure total income? Is it this year's income, last year's or something else? The expenditures for this year are decided by last year's contracts. Hence, last year's income would appear to be relevant. On the other hand, we cannot totally ignore this year's income, for if the firm anticipates a grant next year, it will contract now for more expenditures. A more correct measure, in our opinion, would be a measure of the "permanent" income of the firm. For suppose someone donated a one-year grant, does that imply that the firm will double expenditures this year and cut back next year to its old level? The likelihood is that it will increase this year's expenditures somewhat and shift some resources to future years. (Because of grant requirements, the firm msut use the entire grant this year, but it cannot be deterred from diverting other resources.) The firm reacts to its usual, or permanent level of income and spends in relation to that, whether the current year's income is above or below that level. In this way, a firm could *plan* for a deficit this year, if it expects it to be temporary. In practice, a measure of the "permanent" income is a weighted average of several years' income.*

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*This supply function also takes account of capital-labor substitution in response to changes in their relative prices. In the arts, however, the evidence shows that such substitution is minimal or non-existent (Ford Foundation, Vol. 1, The Financing of the Performing Arts, 1974, p. 59).

B. Ticket Revenue

Revenue to the firm is an expenditure to the consumer. Hence, it is a usual "demand" function, in terms of total expenditures rather than quantity of arts purchased. Since we are looking at demand over time, with changing population, we look at revenue-per-capita of population, which depends

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*For a full discussion of permanent income and how to estimate it empirically, see Friedman, Milton, *A Theory of the Consumption Function*, Princeton University Press, 1957.

in turn on prices and income. (We assume that prices of substitutes vary with the general price level.)

In addition, we must include the cost of time, the other part of the "true-price" of attending a performance. It has been shown (Mincer, Becker) that, in general, if we do not take time-costs into account, we will bias the income-coefficient. This holds even more so in the arts, which are an extremely time-intensive good. To measure time costs, it is standard to use the general wage-level.* We have, then:

$$r_i = r_i\,(P_a,\ P,\ DPI,\ W) + U_i^{**} \qquad (2)$$

where:

r_i = total receipts per capita of the i^{th} firm

P = ? general price level

P_a = price of output

DPI = disposable personal income

W = general wage level

C. Contributions

Contributions to the arts consist of three components: contributions from individuals and businesses, income from their endowments and government grants.

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*We don't also use the unemployment rate because it affects the class of arts consumers very slightly.

**To use this demand-equation in cross-section, we have to add a quality variable for the different organizations. The same holds for the contribution-equation. Also, this equation only holds for a constant supply of output.

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(1) Contributions from individuals and businesses depend on the general level of philanthropy and, possibly, on financial conditions in the arts. It would be of immense value to the arts organizations and to government to know how contributions to the arts fluctuate with changes in economic conditions and tax incentives. However, despite all the work to date--including the vast amount of research sponsored by the Filer Commission--the present state of knowledge in the philanthropy field will not allow us to estimate it at this time. The only time-series analyses of the determinants of philanthropy we have seen to date (Schwartz, 1968, 1970) would require us to break contributions down into corporate and individual components and, further, into different income brackets. Moreover, the Schwartz study (1970) deals with the effects of the relative price of a contribution and of income on the contributions of each income group and not with the determinants of total contributions. For example, it is not clear what effect an increase in total disposable personal income would have on total contributions. In Schwartz's regression equations, it would have the effect of increasing the DPI of the sample group and of the non-sample group with opposing effects on contributions. Or, what is the effect of inflation on contributions, a problem about which non-profit organizations are always complaining? Among other effects, it clearly has an effect of shifting people into higher tax groups, a phenomenon not accounted for in the Schwartz studies.

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To create a unified theory of contributions over time and empirically estimate it, is beyond the scope of this limited study. On the other hand, to run an _ad hoc_ regression on some general economic variables, e.g., the price level, GNP, tax rate, etc., without a complete theory, could lead to biased and seriously misleading results. Therefore, we will attempt to get the most out of our data by seeing how contributions to the arts vary with contributions in general--leaving aside the problem of how the general level of contributions is determined--and whether and how they vary with conditions within the arts. We have, then, for one firm:

$$c_i = c_i\ (GC, FC_i) + U_{ci} \tag{3}$$

where:

c_i = total contribution per capita to i^{the} firm

GC = general level of contributions

FC_i = financial condition of the i^{th} firm

We are not interested, however, in equation (3) but in the industry-function and here we must beware of the "fallacy-of-composition."

The empirical evidence so far on the effect of FC_i on C_i is inconclusive.* But even if a worsening of the financial condition in one firm led to an increase in contributions to that firm, it does not necessarily follow that a worsening in the entire industry's financial condition will lead to an increase in contributions to the industry. For while a contributor might shift his contributions from firm A to firm B in response to a worsening of B's position relative to A, it is less likely that contributors will shift contributions from hospitals to the arts--or, even from operas to museums--and even less likely that the general level of contributions will be increased, in response to a worsening of the industry's situation

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*The study by Martin (1975) shows only that in the cross-section, contributions respond to the accumulated deficit. But this does not really prove anything, for a firm with a large accumulated deficit could imply a large organization and, hence, larger annual contributions. To actually test her hypothesis, one would have to look at individual firms over time or standardizing for size in the cross-section.

We therefore have an industry contribution function:

$$C = c\ (GC,\ FC) + Uc \tag{3a}$$

which will enable us to see whether industry contributions vary with industry financial conditions.

(2) Income from a firm's endowments is determined by past contributions. An analysis of such income would require a theory of long-term contributions. For reasons stated previously, we cannot undertake such a study at present. However, all that affects the firm's output and pricing decisions is the current income from endowments which it treats as a "guaranteed" income, as we have seen in the discussion of output decisions, and since such income is determined by past contributions to the endowment fund, we need not inquire into its determinants.

(3) A growing component of contributions consists of government (all levels) grants. We have not seen any studies

which purport to tease out the determinants of this component. Authorizations are a function of economic as well as of political variables and an analysis of these factors would take us well beyond the scope of the present study. In our model, government contributions are treated as a predetermined variable.

D. Ticket Prices and Artistic Wages

So far we have discussed our basic system. We still have, however, possibly two "endogenous"--determined within the system--variables: price and wage rate.

Baumol and Bowen have hypothesized that the firms raise prices when costs go up, i.e., the wage-rate and/or the price of other inputs. However, observers of the behavior of arts organizations indicate that such firms are reluctant to raise prices for fear of driving away customers, and use it only as a last resort, when the financial situation is desperate. We believe that they are less reluctant to raise prices, if the prices of all goods are rising--the general price level. If so,

$$Pa_i = Pa_i\ (W_a, P, FCi) + U_{pi} \qquad (4)$$

Wages in the arts depend on general economic conditions --wage and price levels--though with lags and variations in pattern, in great part due to productivity gains in the general economy, with virtually none in the arts sector. In addition, Baumol and Bowen have hypothesized that the firms tend to increase salaries consequent upon an increase in receipts. This is due in great part to the pressure of labor during periods of high receipts. We have, then:

$$Wai = w_i\ (W,\ P,\ FCi) + Uw \qquad (5)$$

Wages in the arts have two dimensions: (1) wage-rate per-time period, e. g., per-day, -week, etc. and (2) the required amount of pay-periods each year. These two tend to move together. The import of the latter dimension is due to the fact that it directly determines the amount of output. For when labor and management agree to increase the amount of paid weeks, the playing season is automatically lengthened, unless management wants to pay for no work.

As a result, it often appears that labor directs the movement in the arts. In this respect, it is similar to Pauly and Redich's (1973) treatment of the hospital as a co-operative operated to maximize the income of the primary labor input (i. e., physicians). In the arts, as well, labor's goal is to maximize its income, subject to the budgetary constraint, and often, especially with a powerful union, it comes very close to meeting that goal. We do not treat the arts in precisely this manner, since management has a distinct role with other (and possibly) conflicting goals. Such management desiderata as prestige, quality, attendance, and so on, serve to temper the final wage settlement.

III. The System in Operation

Let us now put together the entire system for the industry and see how it operates. We postulated that it is the goal of management to maximize attendance (output) subject to:

(A) maintaining its level of quality and

(B) $\sum E - R - C = 0$

where expenditures, revenue and contributions are determined in the following simultaneous fashion:

$$e = e\,(Wa, P, TI) + Ue \tag{1}$$

$$r = r\,(Pa, P, DPI, W) + Ur \tag{2}$$

$$C = c\,(GC, FC) \tag{3}$$

$$Pa = Pa\,(Wa, P, FC) + Up \tag{4}$$

$$Wa = w\,(W, P, FC) + Uw \tag{5}$$

where all the variables are for the industry.

Expenditures in the budget constraint are related to output in (1) by:

$$E = e \times Co \tag{6}$$

where

$$Co = \sum_{i=1}^{k} p_i P_i \qquad (7)$$

and p_i and P_i are the proportion and price of the ith factor input respectively.

In addition, as was noted above, a major determinant of the shape of the wage-function is labor. In the limiting case of an all-powerful union, every increase in income is diverted to an increase in Wa and, thus it would appear that the industry behaves as if its goal were to maximize Wa subject to its constraints. To more fully comprehend the operation of the system let us take a look at two possible scenarios.

Scenario I

(1) Assume labor strikes and thus forces a higher wage-rate (per-week) for the same services performed.

(2) This may be followed by: (a) decrease in output, thus saving costs of other inputs and/or (b) increase in ticket-prices, Pa, and/or (c) management seeks increased contributions.

(3) As a result of which, (a) revenue may increase, due to increased price of ticket and/or (b) contributions may respond to increased need.

If, for example, management attempts (2c) and (3b) doesn't happen, then it tries (2b). If that also doesn't work, it must resort to (2a) and, if necessary, even fire workers. At this point, an agreement may be reached not to raise wages thus causing a decrease in real wages.

Scenario II

(1) Assume that a benefactor donates a huge grant.

(2) This may result in: (a) increased output, and/or (b) the wage-rate being increased and/or (c) real ticket prices are decreased by not raising prices with increases in inflation.

(3) (a) Therefore Wa is increased through (2a) and/or (2b) and/or (b) revenue from tickets is decreased or increased, depending on how attendance reacts.

The extent to which actions (2a), (2b) or (2c) are taken depends on the shape of the wage function, which, in turn, depends on the relative strengths of management and labor.

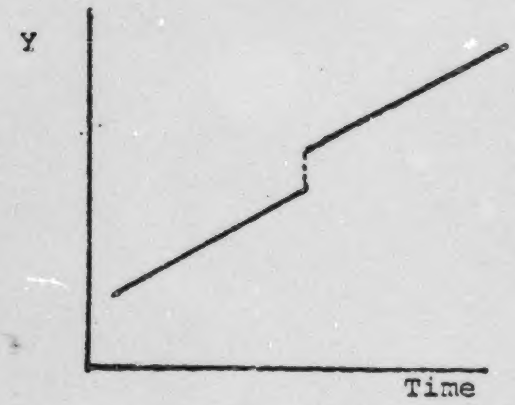
With these two scenarios, one can see how the system operates. For example, suppose the general-wage-level is increased, then Scenario I follows. In addition there is an effect on ticket revenue. Or, for example, one can trace the effect of an increase in the general price-level.

IV. Methods of Estimation

A. Introduction

In order to know what methods of estimation to use, one must first know the data available: the available variables, reliability of the data, and the shape of the series. For example, if the entire time series lies on a horizontal line then there is nothing to estimate. Or if there are no fluctuations in the data but rather they all lie on one trend line with one break, as in Figure II-1, then one cannot use regression analysis.

Figure II-1



That is not to say that if one ran regressions, he could not obtain significant results. On the contrary, if one ran the variable Y on any economic time series -- e. g., GNP, price-level, etc. -- all of which were upward rising over this period, let alone on a combination of a few, together with a constant term and a dummy variable for the two sub-periods, he would obtain a nearly perfect fit. But how are we to determine which one of the economic series to use? Indeed, if one used a simple trend variable, i. e., 1, 2, 3, etc., together with the dummy variable, he would obtain the best possible fit: a perfect fit.

In addition, regression analysis should not be the point of departure of empirical analysis but rather the end product. If one regresses variables on other variables, numbers will always be obtained. Hopefully, they will be the expected results; otherwise, the blame is placed on the data, a new hypothesis is created to explain the unexpected results, or the theory is revised so that the obtained results now become the "expected." In reality, however, perhaps neither should be expected. Rather, the point of departure should be the analysis of the raw data: e. g., do the data show any trends, kinks, sub-periods of different behavior, etc.

This approach is doubly important in an area like the arts where so many institutional phenomena affect every move. For example, in analyzing the wages of orchestra players, we obtained a regression with an almost perfect fit, nevertheless we discarded it, because we believed it did not reflect the true determination of wages. Some of the basic wage determinants such as union power and degrees of expectations could not be included since they are not subject to quantification, while the almost perfect fit was simply caused by reasons similar to those we gave for Figure II-1.

We will therefore proceed as follows: in section B we describe the derivation, reliability and shortcomings of the data and in section C we describe the approaches we take in Chapter III, where we fully analyze the data.

B. The Data

1. The ASOL Data

In order to get any meaningful results one needs continuous data over an extended period. Since no such data base was available, we set out to create one.* We, therefore, went to the only known long-time series of raw data on the arts gathered by the American Symphony Orchestra League (ASOL). We use the data on major symphony orchestras for the period 1949-50 through 1974-75 (except for the 1959-60 season for which there is no known existing data). Twenty-three major orchestras reported throughout this period, the rest entering the ranks of the majors during this period. However, some of these did not report for all the years and we had to omit six orchestras: Atlanta, Boston, Detroit, Kansas City, Rochester, and San Antonio.

The remaining seventeen are as follows: Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Houston, Indianapolis, Los Angeles, Minneapolis (now Minnesota), National (formerly Washington), New Orleans, New York, Philadelphia, Pittsburgh, St. Louis and San Francisco.

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*Baumol & Bowen attempted the same but their series extended only to 1964 and contained many gaps.

These are a good cross-section of major orchestras, both in terms of expenditure levels and geographic location. In terms of size, the deleted group contains one of the top orchestras, three of the smallest, and two of the middle range. The seventeen included, either reported all the years, or missed a year or two, which we estimated so as not to bias the total amounts.

The ASOL are a very rich set of data, in that they contain all necessary information, save for the price of tickets. The problem with the data is, however, that they are unaudited, and, in the early years, the numbers were not even checked to see that they totaled correctly. There is, therefore, a question of reliability of the data. Another problem is the change of categories used over the years.

We edited the data to remove any visible errors -- including typos -- and unified different categories so that the data are at least internally consistent. Any missing data were usually estimated by using an average of the values for the preceding and following years. However, where (1) we saw a different pattern for the other orchestras or (2) we could check it against other data submitted by the same orchestra for the same year -- e. g., the average weekly salary aginst the total wage bill and the length of season -- we revised the figure. Also, by using aggregate data we minimized the risk of error, since if one organization commits an error, it is only a small fraction of the total figure which we use. In addition, we compared some of the more recent data with some audited annual reports of orchestras in our possession and, on the whole, they matched. We are convinced therefore that our data base, as a whole, is relatively reliable when compared with other economic time-series. It is probably the first such data base -- covering so long a period and with so much detail. The data base as well as notes on the derivation of the individual variables are given in Appendix A. Here we want to limit ourselves to some general problems.

Arts observers agree that any data on the number of admissions for the arts is very unreliable. Even the data on the number of admissions for the regular subscription series which we use appear to us to be all estimated, immediately raising the question: are they good estimates? Because it is impossible to determine which ones are good estimates, we eliminated only those orchestras which appeared to us to have such gross errors as to seriously bias our data. We also hope that in the aggregate the errors cancel even though we cannot be certain of this. This raises a problem with our calculation of an average price of tickets.

The price of tickets is the only missing variable in the data. We get an average ticket price, as Baumol and Bowen did, by dividing ticket receipts for the regular subscription series by the number of tickets. The problem with this method, however, is that we obtain the average price bought rather than that offered. For if the relative demand for more expensive and cheaper tickets varies, the average-data-price will fluctuate. In addition, the unreliability of the admissions data results in making our price series unreliable. This will bias not only the coefficient of price but also all other coefficients of the equation. As of now, however, we have found no substitute and we will have to be careful with the empirical results we derive. (A further discussion is found on page 64.)

A problem also exists with our average wage. The average-wage in the data is the "average-wage-realized" rather than that offered. This creates a problem, for when a new worker is hired, for instance, it is not the high-paid conductor but a lower-paid player, and hence the data will show that the average wage the orchestra pays has fallen, even though the actual wages they are offering have not changed. However, since the total number of players has changed only slightly over the entire period -- about 10% -- the problem is a minor one.

2. The Ford Foundation Data

The Ford Foundation data tape which we received from Applied Management Sciences , contained a sample of orchestras, operas, non-profit theatres and dance groups over a nine year period in aggregate form. These data were arranged by art forms and by income groups within art forms. Although the data were carefully reviewed by Foundation employees, and discrepancies were removed, the first five years were obtained only in retrospect and, hence, for the early years, there is a question of reliability of the breakdown into components.*

In addition, there is a major shortcoming of the data: it is impossible to calculate an average wage rate of players, a variable which, as we saw previously, is perhaps the most important element in analyzing the finances of any arts group. There is also an impediment to the analysis of ticket revenue: we have no measure of the number of performances. This is no fault of the Ford data but of the aggregate data which we received, for in aggregating the data, no weights were used. Since a doubling of concerts by the New York Philharmonic is not the same as that by some minor orchestra, the total number of concerts is valueless for our purposes. As this was a period of greatly expanding services by all the arts, the number of concerts was a crucial determinant of ticket revenue.

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*For a complete discussion of problems of the data, see Chapter III, of Ford Foundation, Finances of the Performing Arts, Volume 1.

Moreover, the most serious shortcoming of the data base is its short time-span. The few degrees-of-freedom turn any regressions, even if possible, into an exercise in undergraduate econometrics. If, in addition, we are forced to delete a year or two, together with the unreliability of admissions figures and the lack of some crucial variables, the regressions become mere child's play.

An even greater loss is the fact that the data do not allow us to use even simple statistical analysis, for the same reasons previously enumerated. There are also serious problems in forecasting. For example, some trends which seemed to be persistent during the earlier six-year period reversed in the latter three years. These problems will be further discussed in Chapter IV.

3. Museum Data

Museums are an area where no time-series data exist. Consequently, an effort was made to build such a series. The agreed-upon division of labor was that we would obtain the data and Applied Management Sciences would edit the series and supply us with a usable set of data. While we made a strong effort at obtaining the raw data -- and indeed were relatively successful -- what we received in return was a data base which requires a complete re-editing (for complete details see Appendix B.) Because our resources did not allow it, we could not use the data.

C. Estimating the Model

As we have seen, the ASOL data are the only data we can use in order to test our model. While, in a strict sense, any results we derive are applicable only to the major orchestras, we can, nevertheless, make some general inferences about the bahavior of arts organizations in general. Fortunately, this data base is not only highly detailed and long-term but it also covers a period containing some unusual elements--i. e., the rise in union power and the Ford Foundation Symphony Program. Such special institutional factors are of utmost importance in studying and predicting the future behavior of any arts organization.

How will we estimate our three basic equations? In order to prevent our main approach from being hidden by a mass of data, it may be useful, at this point, to present an overview of our procedure. We begin first with an analysis of all of the individual data together with accompanying institutional phenomena. This preview of the problem then enables us to decide whether regression analysis is, or is not, appropriate for particular series.

We will see that output is, more or less, determined by the length of season and hence to determine output we must first determine the length of season. In addition, to determine the total cost of this output -- total expenditures -- we must first determine the wage-rate of players. However, the two dimensions of player wages are, in great part, determined by phenomena which cannot be quantified -- i. e., degrees of expectations and union power -- and hence not subject to regression analysis. In addition, since what we have here is a steadily increasing variable with two distinct periods of behavior -- roughly the two halves of our period -- any economic time-series with a dummy variable for the two subperiods will yield highly significant results.

As a result, we analyze wages as part of the simultaneous determination of the entire system without the use of regression analysis.

We analyze the revenue equation in real terms: first, by ordinary data analysis and then, with real revenue being the only fluctuating dependent variable, using regression analysis. We have previously seen that we can analyze orchestra contributions only in relation to total contributions. The data show that real contributions per capita were roughly constant for the first decade. For the rest of the period, it is almost entirely determined by institutional phenomena and, hence, we analyze it as part of our analysis of the entire system.

CHAPTER III

EMPIRICAL ANALYSIS:
A CASE STUDY OF THE MAJOR ORCHESTRAS

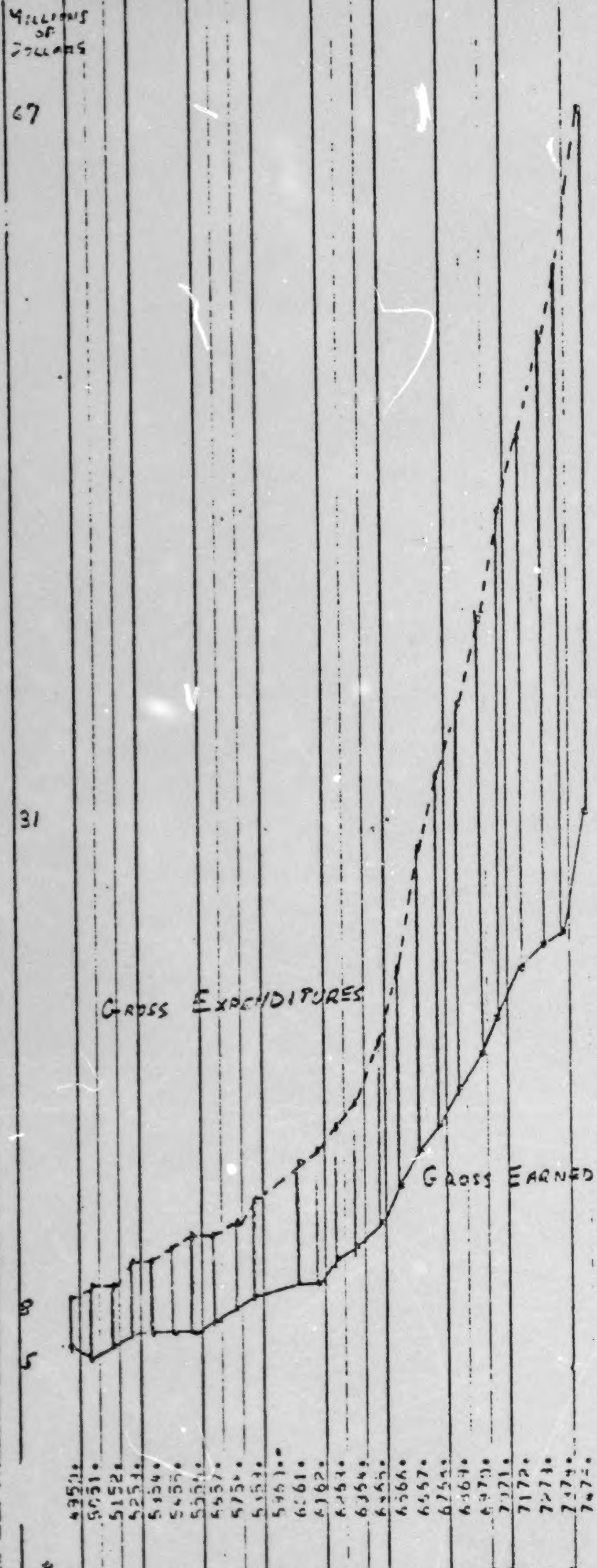
I. INTRODUCTION

In this chapter, we apply our model to the data. As we saw in the last chapter, the only suitable data base was that for our set of seventeen major orchestras. We analyze the data, test some of our hypotheses, estimate some equations and then provide a unified explanation of the behavior of the entire system.

A glance at Figures III-1 and III-2 reveals a problem not previously encountered: not only do we have the old problem of an ever-increasing "earnings gap," but now we have a continuous deficit -- approximately two million dollars annually for our set of seventeen major orchestras. In order to identify the sources of this problem as well as to understand the finances of the orchestras in general, we will as a first step, analyze in turn each of the following variables: expenditures, revenue and contributions.

Figure III-1

The Earnings Gap*



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*The raw data for this and all subsequent Figures are in Appendix A with their corresponding numbers.

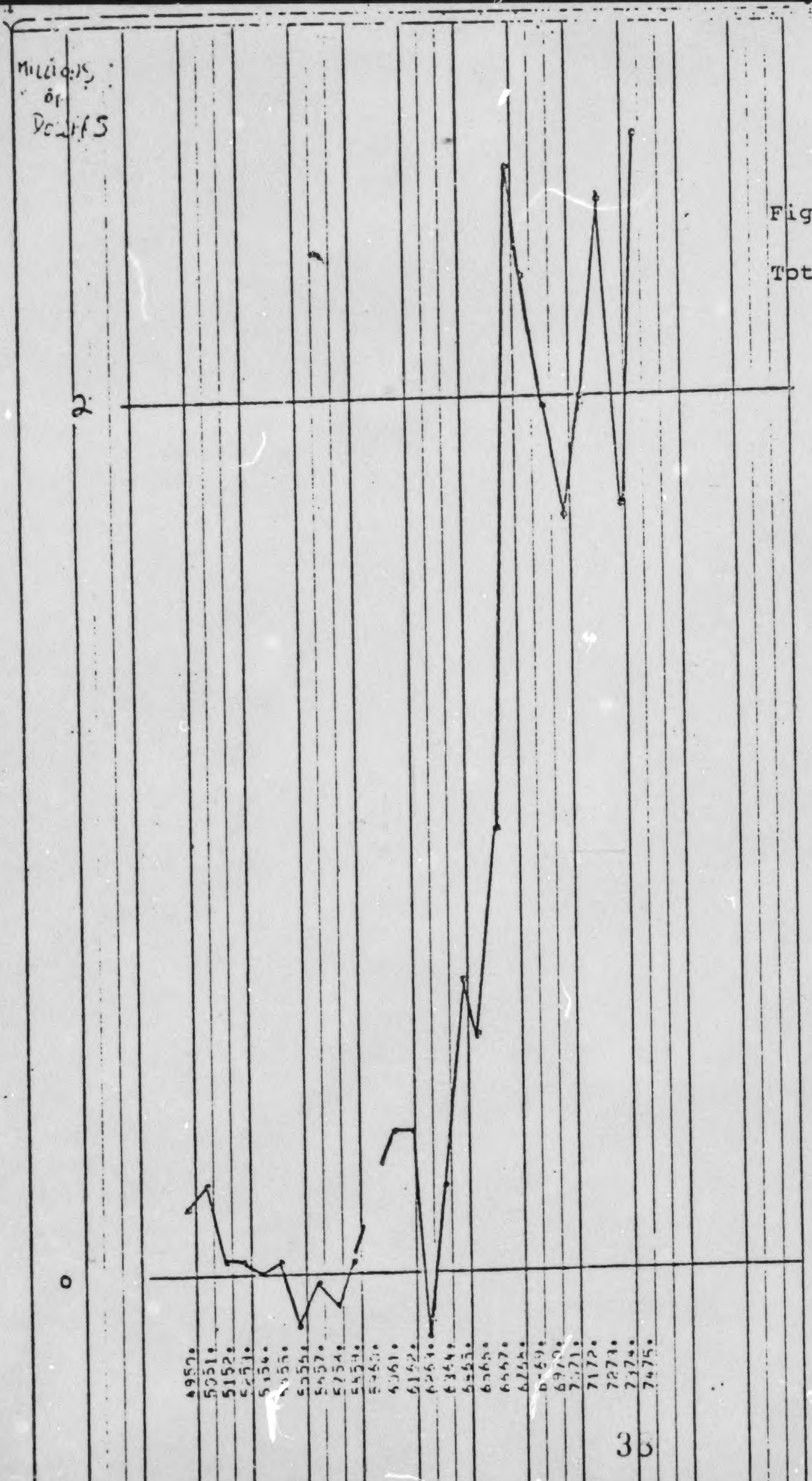


Figure III-2

Total Deficit

II. EXPENDITURES AND ITS COMPONENTS

A. Trends in Players' Salaries

The player's salary, as we saw in Chapter II, has two dimensions: (1) wage rate per period and (2) the number of pay periods per year. In the orchestras, the pay-period is the week and the number of periods is the length of season. Figures III-3 and III-4 show, respectively, the average length of season and weekly salary. The following conclusions can be drawn from the data:

(1) The average length-of-season almost doubled during this period from 26.1 to 49.4 weeks. The first decade showed a very slight increase -- a total of about 7%, followed by several years of more rapid growth. The '64-'65 season marked the first of four seasons of remarkable increase -- a total of 40% -- followed by a steady decrease of the rate of growth and leveling off as the maximum is being approached.

(2) The real average weekly salary of regularly employed players increased by about 50% over the entire period (which now begins with the '51-'52 season). Up to '58-'59, it was roughly constant, with only a slight increase. Then came a period of steady growth of about 3 1/2% annually. The '65-'66 season followed with the largest increase of the entire period, which was followed by a period with the growth rate steadily decreasing, then leveling off and finally dropping.

Figure III-3

Average Length of Season

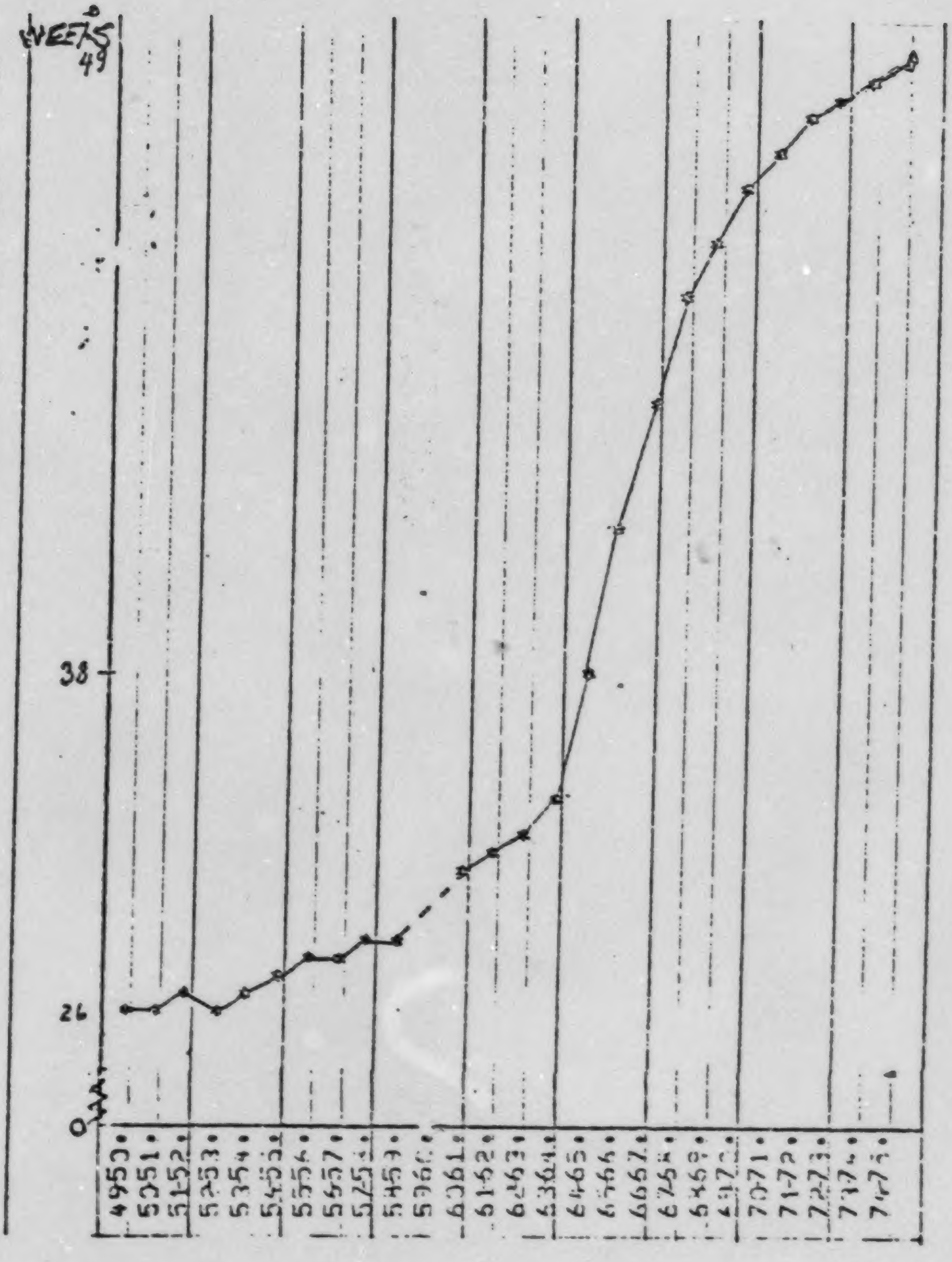
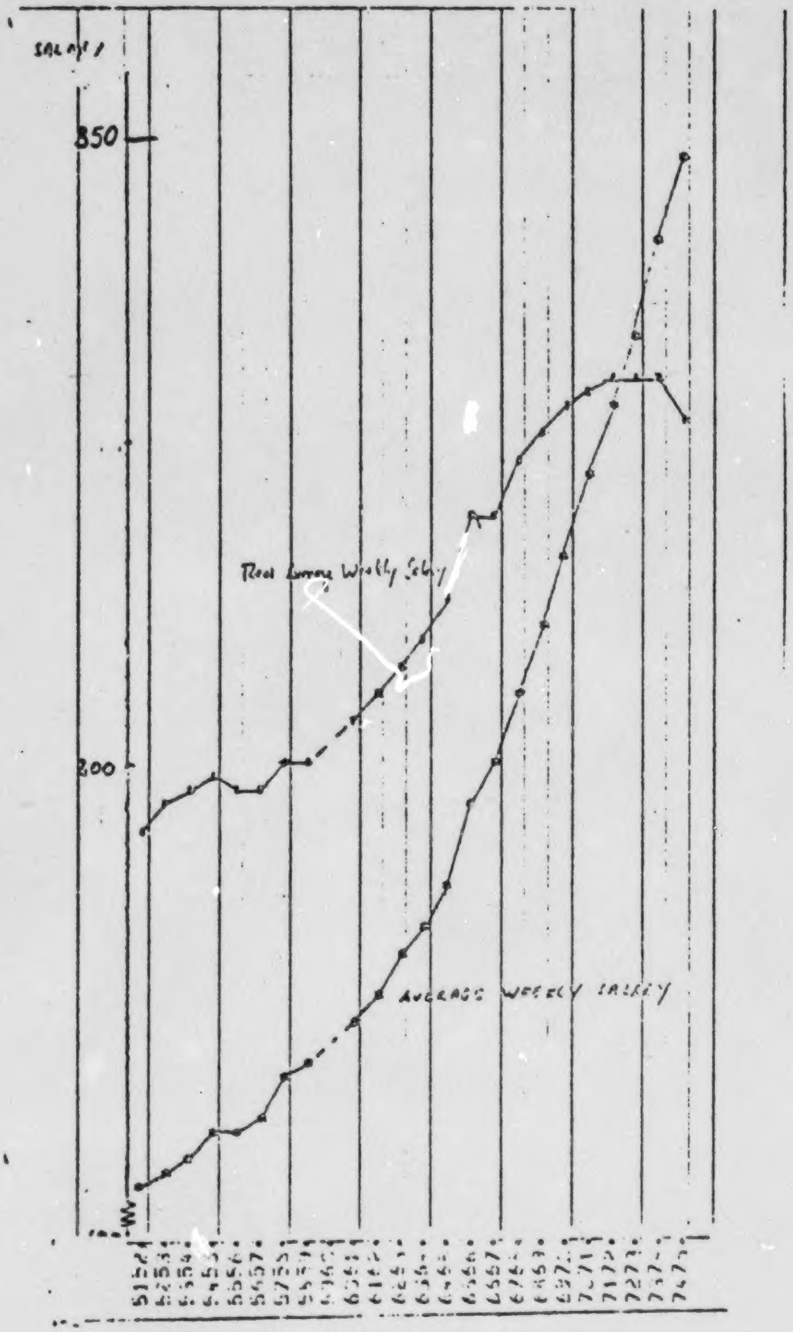


Figure III-4

Average Weekly Salary

Regularly Employed Players



B. The Relative Position of Orchestra Players.

We not only want to know how player salaries have increased over this period but also how they changed relative to wages in the rest of the economy. We used the average weekly earnings in manufacturing for comparison (Figure III-5). In order to see how the position of orchestra player relative to manufacturing worker varied over this period, we have Figure III-6, which shows the ratio of average weekly salary of player to that of manufacturing.

During the first decade, the relative position of players decreased less than 5%. The '61-'62 season marked the beginning of a period of steady rate of growth, attaining their original position by '64-'65. Had this rate continued, they would have attained their final position. Rather, the rate accelerated beginning with the '65-'66 season and finally reached its peak in '70-'71. Then came two seasons of decline, back to the '68-'69 position, followed by two seasons at the same level.

By comparing Figures III-4 and III-5, one sees that the latter half of the '60s was a most unusual period for manufacturing salaries, in that the real average weekly salary was relatively constant after a long period of steady growth. At the same time, the real salary of players was increasing, thus raising their relative position. On the other hand, the early '70s marked the resumption of growth for manufacturing real salaries while that of players leveled off so that their relative position decreased.

Figure III-5

Average Weekly Earnings In Manufacturing

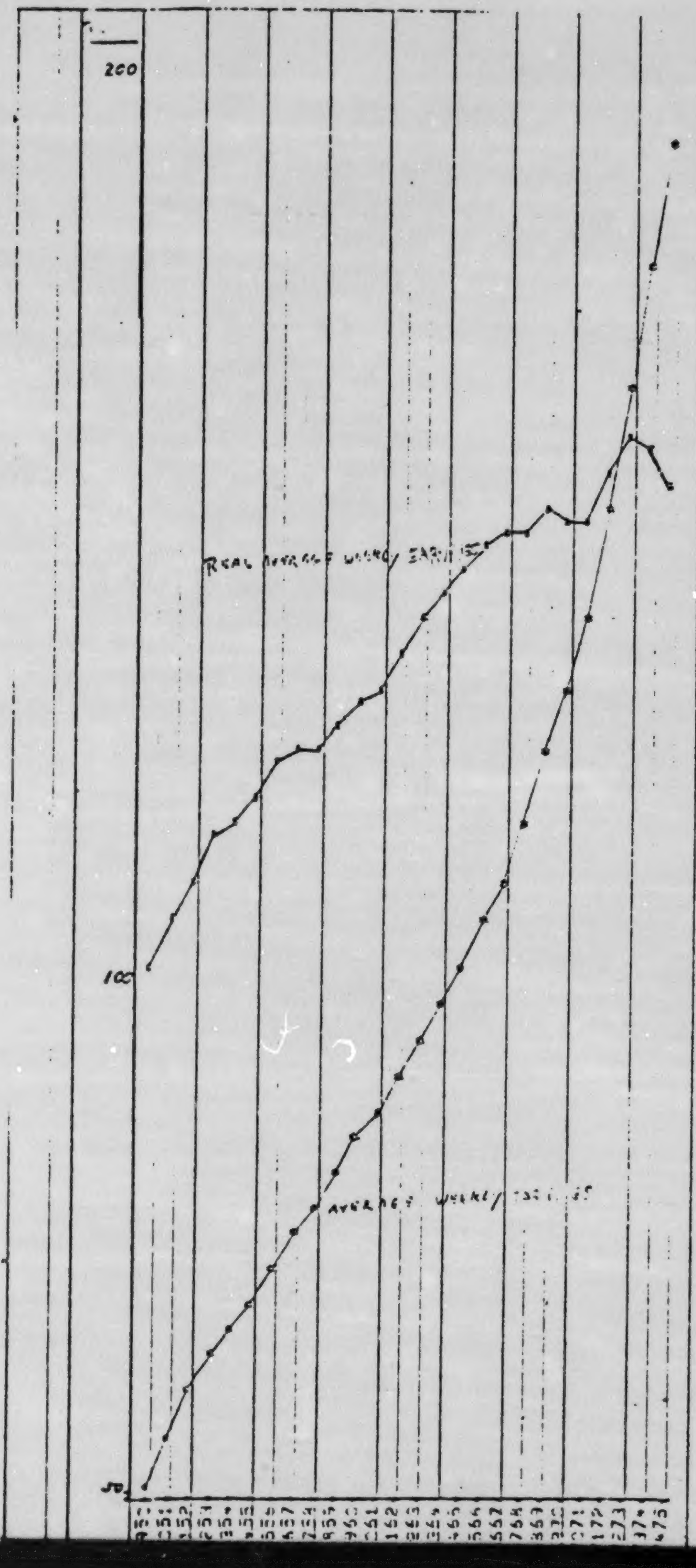
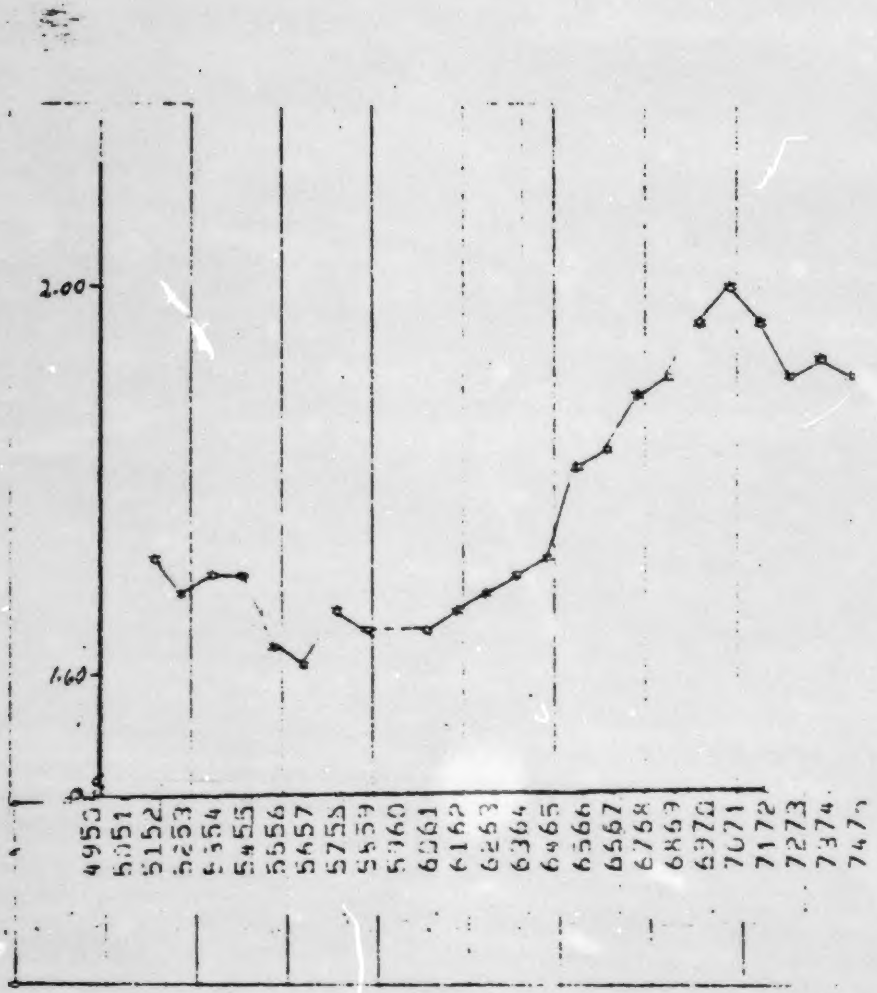


Figure III-6

Player/Manufacturing Weekly Wage Ratio



C. The Role of Unions

It should be obvious, by now, from the data that the '60's marked a new direction for players' salaries and relative position which further accelerated in the latter half. Although we will defer a complete analysis until we look at other elements of the picture, especially the Ford Foundation grants, we will now take a look at the role of unions, with no judgment as to whether it was the sole cause of these events.

Although long unionized, the '50's showed a period of increasing player militancy, an important milestone of which was the first strike at Philadelphia in 1954, which led to the formation of ICSOM (International Conference of Symphony and Opera Musicians) in 1961.* This information alone is insufficient to show conclusively that unions had a role in increasing salaries, for perhaps the orchestra managers turned benevolent. We turn, therefore, to the pattern of change in the length of season** of the individual orchestras (Table III-1). The data reveal an almost simultaneous movement in all of the orchestras toward a full season, the leading orchestras attaining that level first, then followed by the others. This simultaneity, it would appear, could not have evolved without a common driving force: ICSOM.

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* For a complete account, see Hart, Philip, Orpheus in the New World, New York, 1973, Chapter 5.

** Although a similar pattern holds for changes in average weekly salary, it is harder to follow the numbers and hence it was omitted.

Table III-1 Length of Season, Individual Orchestras (in weeks)

	'63-'64	'64-'65	'65-'66	'66-'67	'67-'68	'68-'69	'69-'70	'70-'71	'71-'72	'72-'73	'73-'74	'74-'75
Baltimore	26	29	34	34	36	36[3]	38	38	42	42	42	44
Buffalo	29	29	34	34	36	38	38	35	39	42	42	42
Chicago	36	38	42	43	(51)	52	52	52	52	52	52	52
Cincinnati	31	31	34	㊻	44	45[4]	㊿	52	52	52	52	52
Cleveland	32	30	37	㊾	(52)	52	52	52	52	52	52	52
Dallas	25	28	29	32	34	35	36	37	35	40	42	26[7]
Houston	25	28	28	29	㊵	41	43	45	(52)	52	52	52
Indianapolis	25	27	28	31	33	34	35	36	26	38	40	42
Los Angeles	23	25	28	37	42	43	47	㊿	50	51	52	52
Minneapolis	30	31	36	38	39	41	45	45	46	48	48	48
National	31	24	36	40	46	45	40	49	㊿	50	51	52
New Orleans	25	27	30	32	33	35	36	36	37	38	38	38
New York	42	(52)[1]	52	52[2]	52	52	52	52	52	52	52	52
Philadelphia	37	41	(51)	52	52	52	52	52	52	52	52	52
Pittsburgh	29	30	33	40	42	44	47	48	49	㊿	51	51
St. Louis	27	30	38	36	37	44[5]	47	49	49	(51)	52	52
San Francisco	24	26	28	29	30	36	36	37[6]	39[6]	㊵[6]	40[6]	41[6]

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[1] Circle marks at least 50-week season; broken circle marks a large jump, leading to a full season.

[2] Scheduled 52 (8 weeks strike).

[3] 36 but strike reduced to 34.

[4] 35 weeks actual--shortened approximately 10 weeks by strike.

[5] 44 contract--39 actual due to 5 week strike.

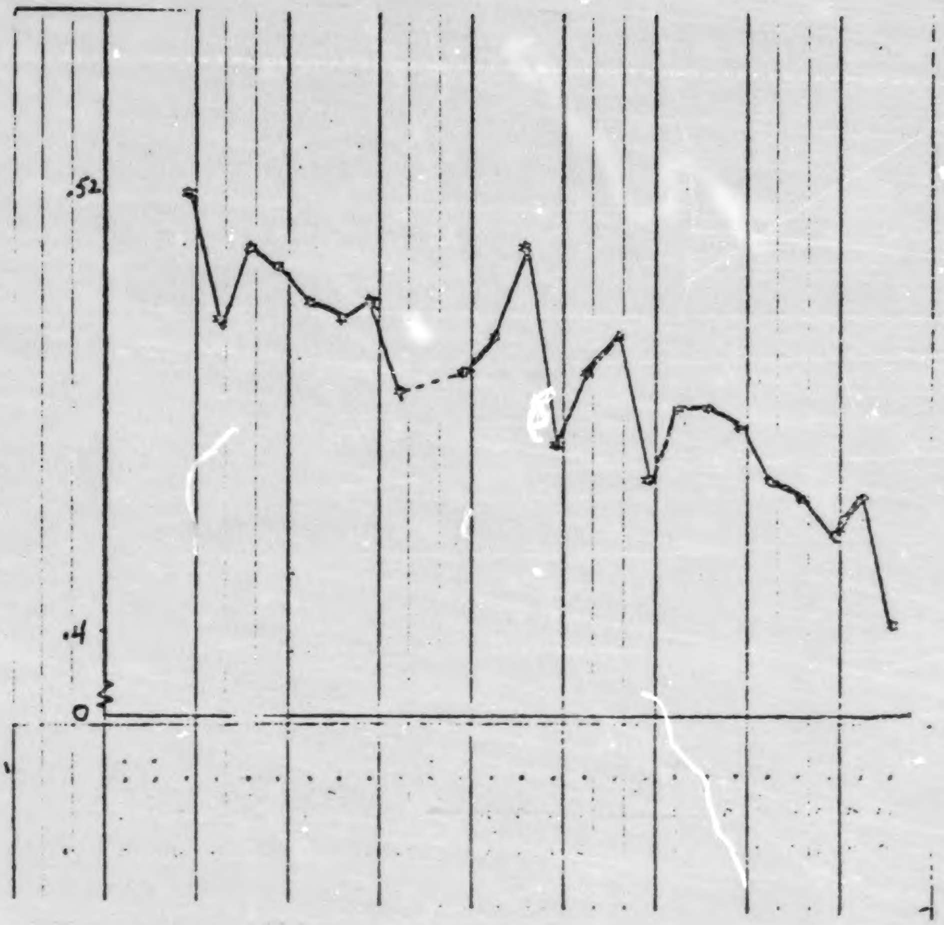
[6] San Francisco has a supplemental guarantee to its musicians not engaged in San Francisco Opera Association for the rest of season; '70-'71 - 7 weeks; '71-'72 - 10 weeks; '72-'73 - 10-11 weeks; '73-'74 - 11 weeks; '74-'75 - 11 weeks.

[7] A star on page but no footnote.

Figure III-7

Expenditures On Regularly Employed Players As

Percentage of Total Cost



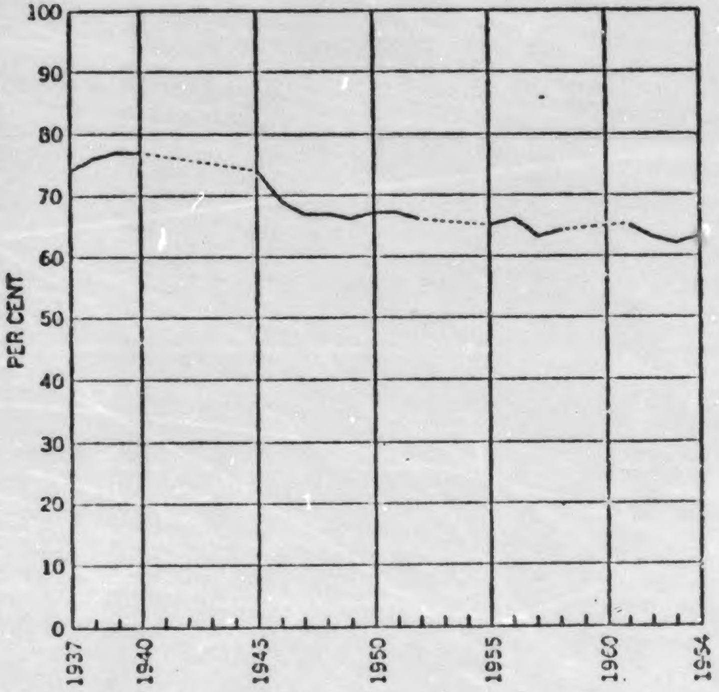
D. Expenditures on Artistic Personnel as a Percentage of Total Cost

There is one trend that appears to be puzzling: that of the percentage of total costs going to expenditures on artistic personnel. If, as we have seen in the previous section, artistic wage rates have risen at a rate far exceeding that of manufacturing and, of course, that of the general price-level, then one would expect the percentage of costs going to artistic personnel to rise; certainly, not to decrease. However, the reverse is the case. Figure III-7 shows the percentage of total costs accounted for by the total wage-bill of regularly employed players. While we can not look at this series on a year-by-year basis -- since there is too much fluctuation due to non-salary costs not having to be expended each year in equal amounts -- it shows a persistent decrease over the entire period.

Baumol and Bowen already raised this problem in Chapter IX. Using expenditures on artistic personnel [as opposed to our regularly employed players], they obtained the following figures:

FIGURE IX-1

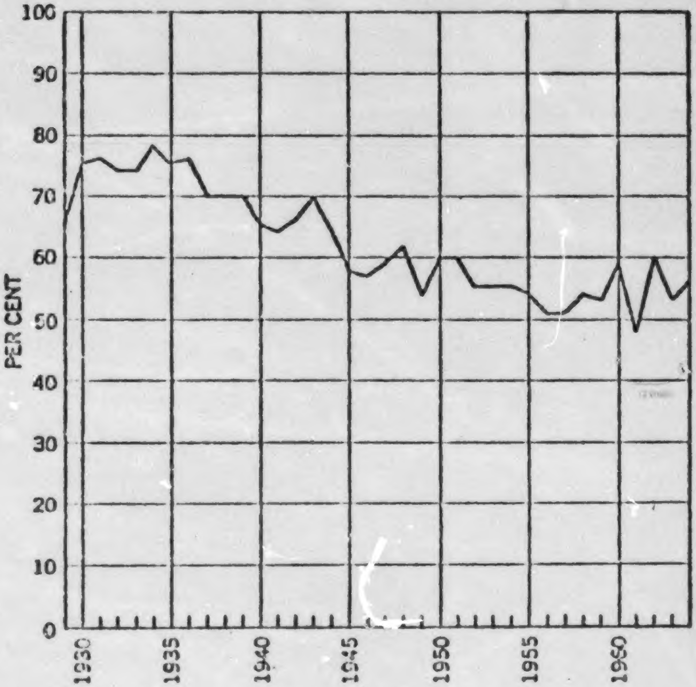
EXPENDITURES ON ARTISTIC PERSONNEL AS PER CENT OF TOTAL EXPENDITURES, ELEVEN MAJOR ORCHESTRAS, 1937-1964



Based on major orchestra compiled reports. Data used here are averages for the basic set of eleven major orchestras.

FIGURE IX-2

EXPENDITURES ON ARTISTIC PERSONNEL AS PER CENT OF TOTAL EXPENDITURES, FOR A MAJOR ORCHESTRA, 1929-1964



Source: Baumol and Bowen, pp. 210-11

At the end of the chapter, they arrive at the following conclusion:

> Artists' earnings are not the only component of cost of performance that has been rising. Indeed, other costs have grown more rapidly. In recent years, at any rate, expenditures on artistic personnel have been a declining portion of the total expenditures of the typical performing organization.

There are two possible reasons for this occurrence: (1) per-unit costs of the non-artistic labor factors of production have risen at a greater rate than that of artistic labor and/or (2) the units of other inputs have increased relative to those of artistic labor. If the former were the sole cause of the drop in ratio, it would imply an increase in the prices of other inputs at a rate far exceeding that of artistic labor.

To grasp the magnitude of the required increase, let us take a look at a numerical example. Suppose that at $100 million of expenditures the artistic/non-artistic ratio was 60/40. Years later, at $200 million of expenditures the ratio is 50/50. The amount of expenditures going to artistic personnel has increased from $60 million to $100 million -- a 67% increase -- while that for non-artistic costs increased from $40 million to $100 million -- a 150% increase. This implies that non-artistic costs have risen more than twice as fast as artistic personnel costs.

Since the per-unit cost of artistic labor has increased so sharply in the past fifteen years -- for a decade outracing the increases in manufacturing -- it can not be that the increase in per-unit costs of other inputs has been the sole reason for the decreasing ratio. This points then to an increasing proportion of other inputs of production, the reasons for which require further investigation. We therefore turn next to trends in the various components of total costs.

E. Trends in the Components of Total Costs

Since the ASOL data does not provide us with a detailed enough breakdown of costs, we now turn to the Ford data. Table III-2 shows the percentage distribution of the major components of total cost for the 12 largest orchestras (this group is close to our set of 17 over a nine-year period). The first year appears to be unreliable with too large an amount shifted into miscellaneous expenditures and, hence, too little in the other components, particularly artistic personnel.

Table III-2

Percent Distribution of Total Operating Expenditures

Twelve Largest Symphonies

	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Total Operating Expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Artistic Personnel	54.4	58.6	56.5	56.1	56.4	55.8	53.1	52.4	51.7
Total Nonartistic Personnel	8.8	8.8	9.4	9.1	9.1	9.6	9.2	9.1	9.1
Total Nonsalary Production Costs	7.7	8.4	8.0	7.2	7.2	6.9	5.8	6.4	5.6
Total Nonsalary Facility Costs	4.2	3.8	4.3	4.1	5.2	4.1	5.8	5.6	5.9
Miscellaneous Expenditures	11.9	6.4	7.6	7.5	7.8	8.4	10.6	11.0	11.4
Nonsalary Subscription/ Promotion Costs	5.6	5.8	4.8	5.1	4.6	5.0	4.6	4.3	4.9
Employee Fringe Benefits	4.6	5.2	5.1	5.4	5.6	6.2	7.6	8.0	8.6
All Other	2.8	3.0	4.3	5.5	4.1	4.0	3.3	3.2	2.8

The table reveals that:

(1) The following components have decreased their share of total costs:

- (a) total artistic personnel salaries and fees
- (b) total nonsalary production costs which includes:
  - (i) scenery, costumes, light, sound
  - (ii) royalties, scores, scripts
  - (iii) transportation, per diem

(2) The following components have increased their share of total costs:

- (a) total nonsalary facility costs
- (b) employee fringe benefits
- (c) miscellaneous expenditures.

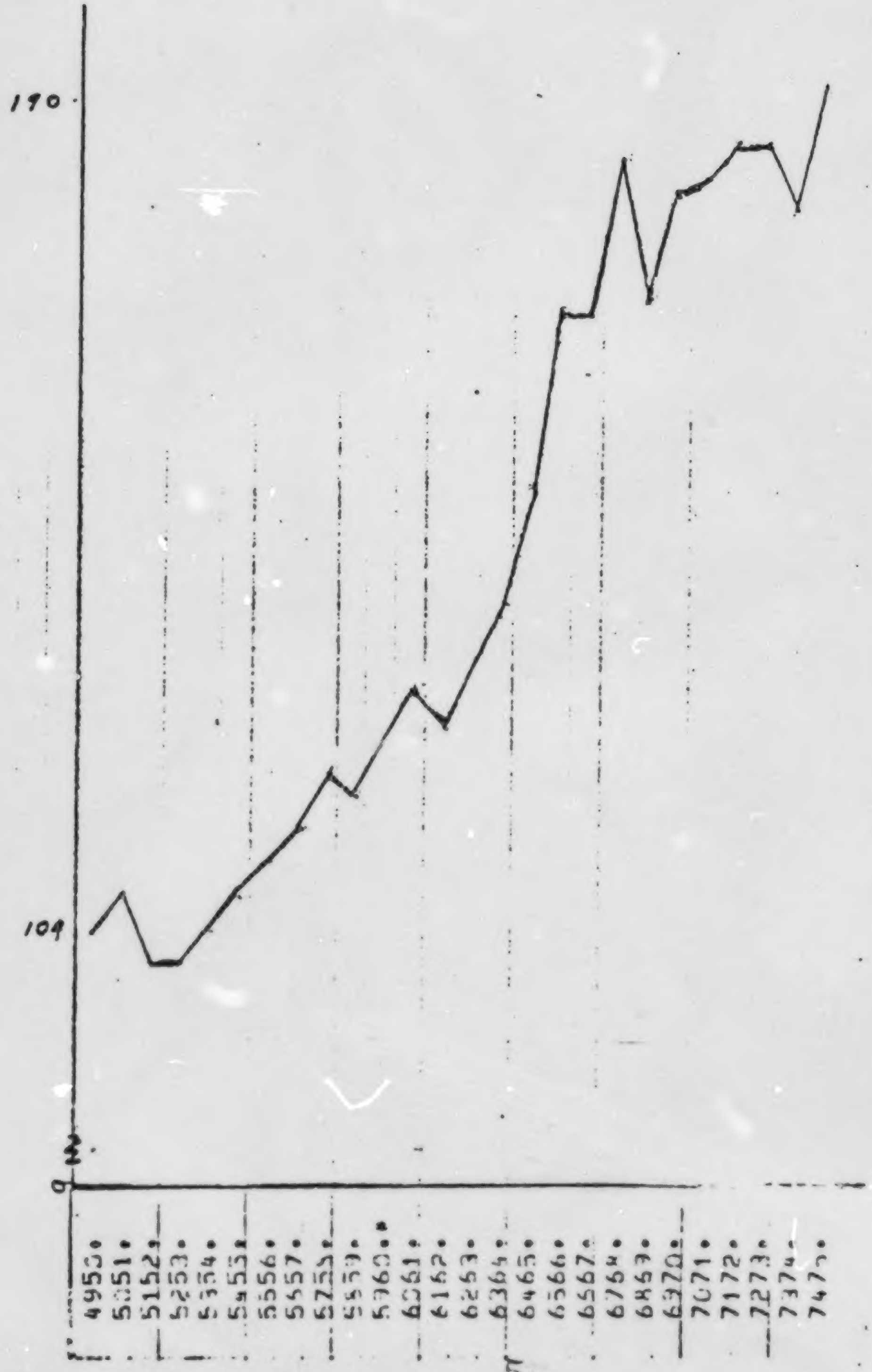
To get an idea of what this catch-all component includes we take a look at the instructions for this category on the most recent worksheet used to gather this data:

> Show all other miscellaneous items of expenditures not previously accounted for including telephones, other postage, general insurance, office equipment and supplies, legal and accounting fees, licenses, and miscellaneous taxes other than admission taxes (the ticket income shown in Table 1 is net), tickets, programs, miscellaneous administration expenses, ticket agency commissions, etc.

The evidence clearly indicates that while the proportion of artistic personnel costs in total costs has been decreasing, facility and related costs have increased. To arrive at our basic explanation, however, we ought to look at one more piece of evidence: the average number of concerts (Figure III-8).

Figure III-8

Average Number of Concerts Per Season



If one places Figure III-8 alongside Figure III-7, one sees the two moving in opposite directions. Clearly, at least one more factor must be taken into consideration: the relative rate of increase of performer salaries. Indeed, Figure III-7 does not show one continuous line of decline but rather two lines, a higher line beginning with the period of huge wage increases. All the evidence now points in one direction: differential "economies of scale."

F. Economies of Scale and the Changing Input Mix

Baumol and Bowen discussed the existence of "economies of scale" and derived cost curves for each of their eleven major orchestras which supported their hypothesis. Globerman and Book* using a more elaborate equation, derived results similar to those of Baumol and Bowen. We need not, therefore, reprove the existence of such economies.

We want to look at another aspect: how economies of scale lead to a changing composition of factors of production. Although Baumol and Bowen also raised the problem of a changing input mix, they did not relate their treatment of economies of scale to this problem.

The connection will become apparent if we turn to their explanation of areas of economizing in the orchestras. After citing administration as one, they state (pp. 202 - 204):

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* Globerman, S. and S. Book, "Statistical Cost Functions For Performing Arts Organizations," Southern Economic Journal, April 1974.

> A more important opportunity to economize is presented by the possibility of making rehearsal time cover more performances. Suppose an orchestra has been running three series of identical programs per season and decides to run four. This will not add to the number of different pieces of music performed. Each item will now be repeated before four different audiences intead of three, and little, if any, increase in rehearsal time will be required. If rehearsal costs were $120,000 for the season, with three series the rehearsal cost per series would be $40,000, and with four series it would fall to $30,000. Here, then is an opportunity to achieve very substantial economies.

If we take this one step further, as the number of concerts are increased, the costs for artistic personnel per concert are decreasing while the facility maintenance and associated costs -- e.g., ushers, guards, etc. -- per concert remain relatively constant. This, then, will result in a decreasing share of total cost going to labor and an increasing share to these other costs, which we have seen in Section E is precisely what has happened. It is also in line with a result which Baumol and Bowen found somewhat surprising: that of a longer range of economies of scale for artistic personnel costs.

In Appendix VIII-2, after deriving average-total-cost curves for their set of major orchestras, they state (p. 480):

> We also undertook a parallel set of regressions, using expenditures on artistic personnel alone instead of total unit costs. There was then a marked improvement in results. The same six orchestras as before yielded results significant at the 99 per cent level, and for five of these orchestras the R^2 ranged between .90 and .99. The general shapes of the average costs curves remained much the same even though, perhaps a bit surprisingly, the minima now generally called for a somewhat larger number of concerts per season. This implies that unit administrative costs typically begin to increase at a number of concerts smaller than the turning point in expenditures on performers' salaries.

Given our previous explanation, this result is to be expected, rather than come as a surprise.

A Digression

We now digress to an issue related to economies of scale. The results obtained by Baumol and Bowen, and Globerman and Book, regarding the number of concerts yielding the minimum average cost are only relevant within their frame of reference. That is, in recent years, as orchestras have extended their activities to concerts outside their own facilities, such as tours, public concerts in the park, etc., they have continued to realize economies of scale beyond the previously derived number of concerts, for they could now play the same concert series to a new audience, without additional rehearsals. Our only evidence is indirect: the changing input mix. A direct test of continuing scale economies using our data base would be welcome, but it is beyond the domain of this limited study.

G. The Determination of Output

We now turn to see whether expenditures have increased solely because of increases in costs or has there also been an increase in output? As we have seen in Chapter II, we get a measure of output by deflating total expenditures by an index of costs -- for which we use a weighted average of the average weekly salary of players and the general price level,* the weights being .6 and .4,** respectively. Figure III-8A shows that while expenditures increased eightfold during the entire period, output only tripled. Actually, output increased even less since our deflator is biased for several reasons:

(1) The average weekly salary is not a true measure of the wage rate, for we must also consider the amount of services ~~required per week~~. Although we could not undertake a complete study of the services required,***, a casual reading of the ASOL data indicates that the average number of services per week has comewhat decreased and, hence, the wage rate per service has increased more than the weekly salary indicates.

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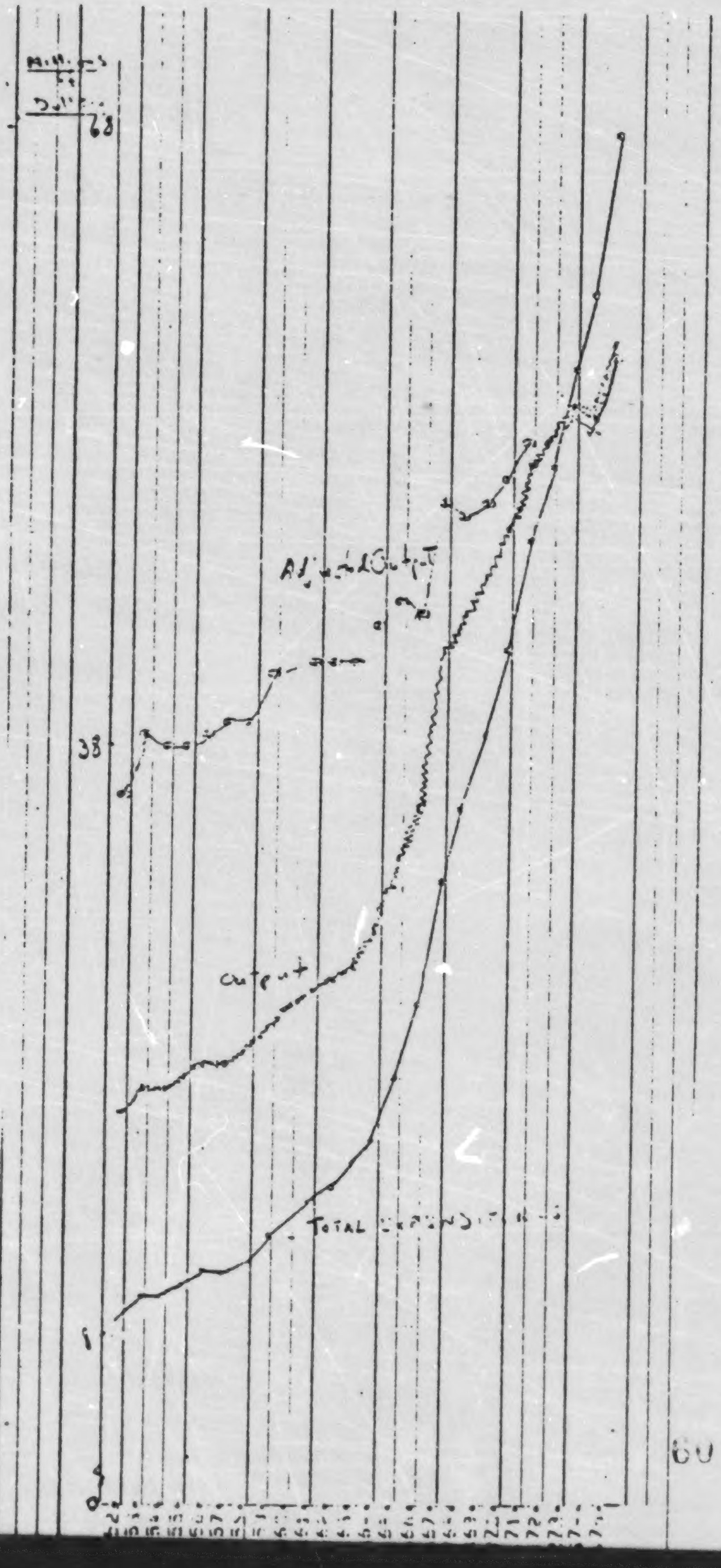
*These were standardized -- 1 in 1972 -- to eliminate problems of magnitude.

**These were roughly the proportions going to artistic personnel and other costs in recent years.

***Because of resource constraints, we could not derive these ratios over the entire period; hence, we had to use one ratio throughout.

Figure III-8A

Total Expenditures and Output



(2) Fringe benefits for artistic personnel have increased substantially during recent years. Thus, the weekly salary understates the actual weekly compensation.

(3) Perhaps the prices of other inputs have increased at a rate greater than that of the general price level.

(4) The ratio of artistic personnel costs to other costs has decreased over this period.*

The above factors decrease the cost index, and thus increase output, during the earlier years. Indeed, if one uses the total number of concerts as a rough measure of output, they have not even doubled during this period (Figure III-8).

What factors accounted for the increase in output? If we deflate output by the average length of season, we see from Figure III-9 that now the increase is only about two thirds. In addition, the total number of players regularly employed by these seventeen orchestras increased by about 10%. If we take into consideration the bias of our index of costs and economies of scale, output was roughly constant during this period, except as dictated by the length of season.

This, then, proves our contention in Chapter II that in the arts, because each unit of output requires a fixed labor component, labor and management -- through negotiation of wages -- jointly determine not only the cost of each unit of output but also the number of units produced. If so, to determine the amount of output at any given time, we only need to know the terms of the wage agreement, which brings us back to the determination of the two dimensions of wages. However, to get a full understanding of the determination process, we need first to study the other two elements in the picture: revenue and contributions.

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*Because of resource constraints, we could not derive these ratios over the entire period; hence, we had to use one ratio throughout.

III. Ticket Prices and Revenue

A. Introduction

Income to an orchestra is usually divided into earned and unearned income. Earned income includes grants for which services are required. Many of these, especially at the federal level, require services only as a formality--i.e., the service required would have been rendered even in the absence of this grant--which in a strict sense should place these grants in unearned income.

Moreover, for our purpose, even those grants which require a specific service--e.g., a concert in the park--are placed with other grants, for the reason that these grants are determined by some outside agency or foundation and are not subject to direct control by the orchestra such as raising ticket prices. Our revenue is composed primarily of ticket revenue and also earnings from broadcasting, recording, etc., which for purposes of the present study, we ignore because of its negligible amount. This leaves us with the question of what determines ticket income, the determinants of which are ticket prices and admissions. Since the most reliable data are for the regular subscription series (on the derivation and reliability of this data see page 22), we look only at ticket income for this series. We will look first at simple trends and then proceed to the regressions.

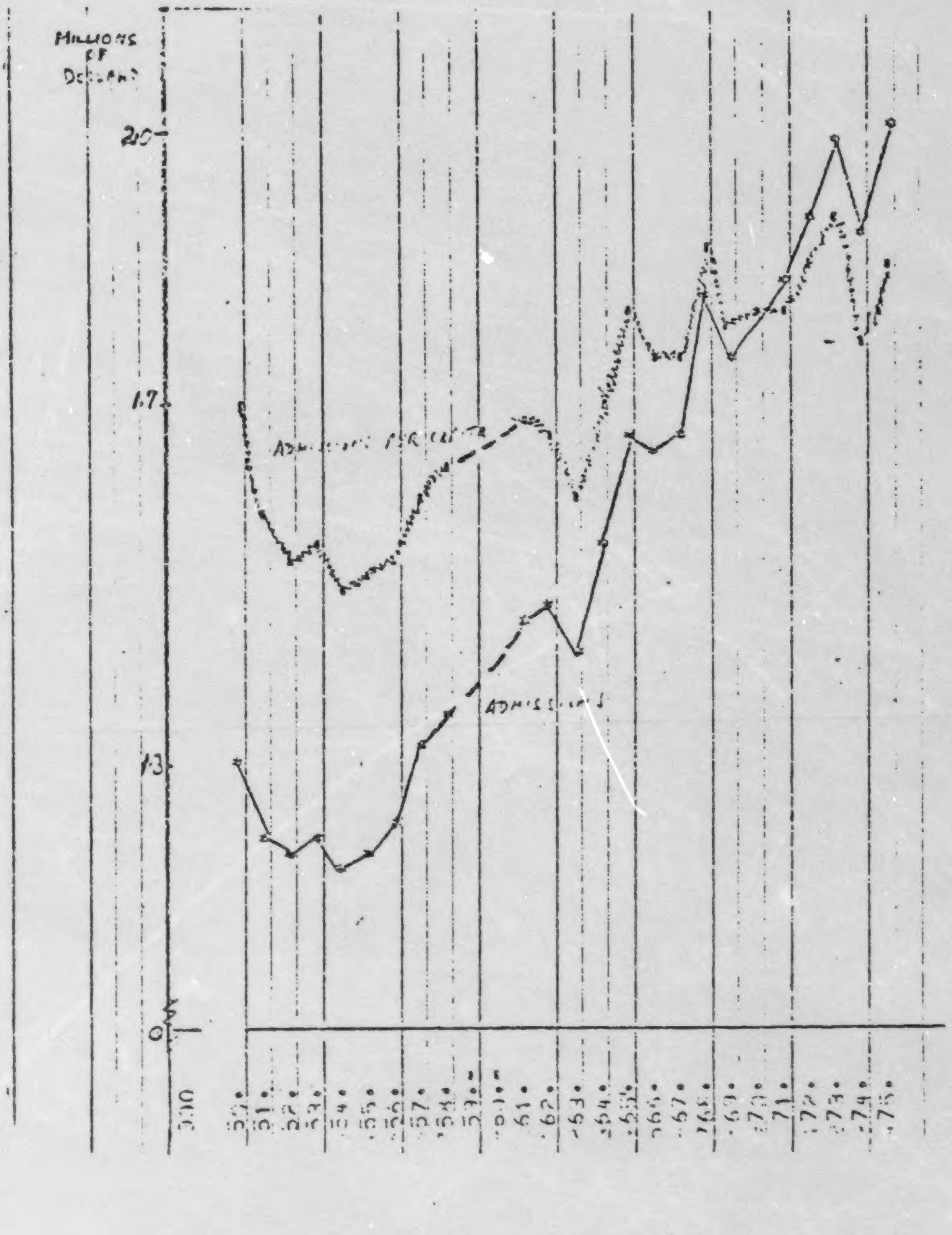
B. Trends in Admissions, Prices and Revenue

Figures III-9 through III-13 reveal, respectively:

(1) Admissions-per-capita (14 and over), after initially

Figure III-9

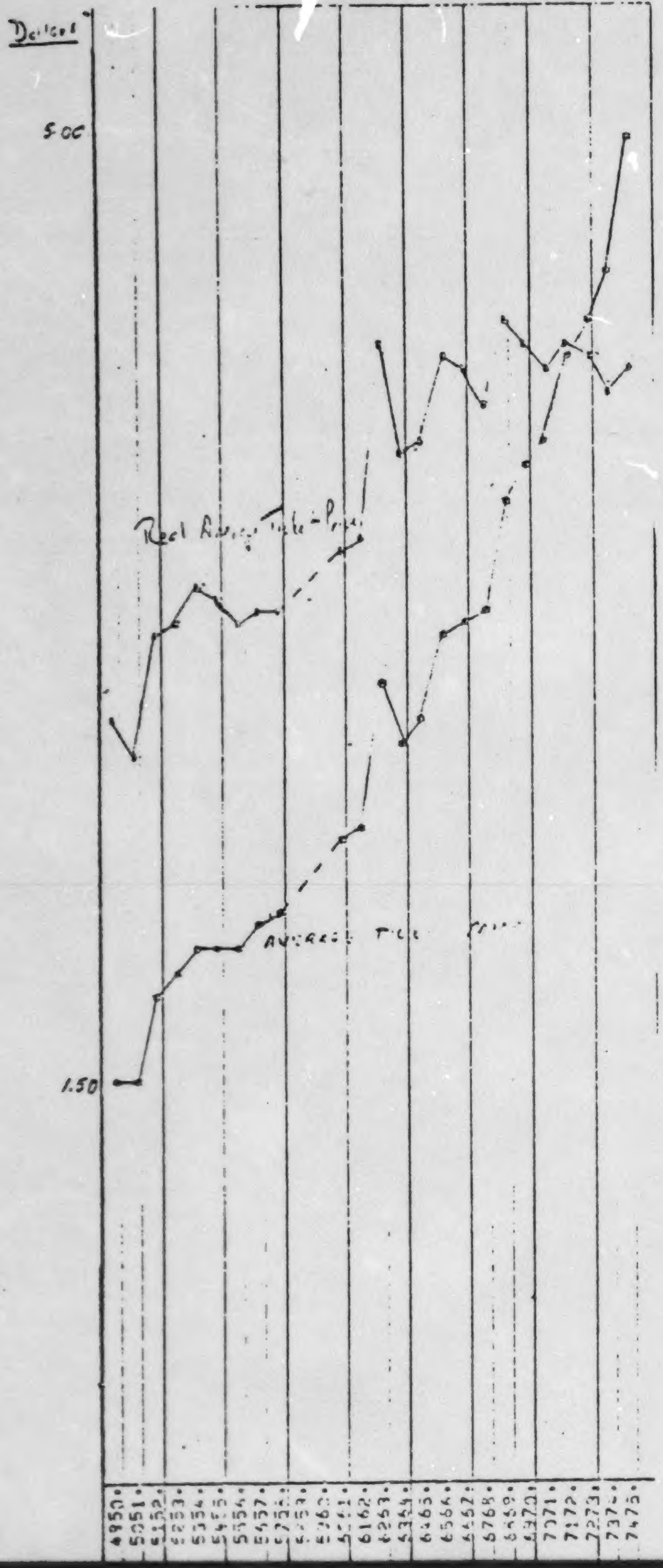
Total Number of Admissions
Regular Series



19

Figure III-10

Average Ticket Price
Regular Series



55
60

Figure III-11

Total Ticket Income
Regular Series

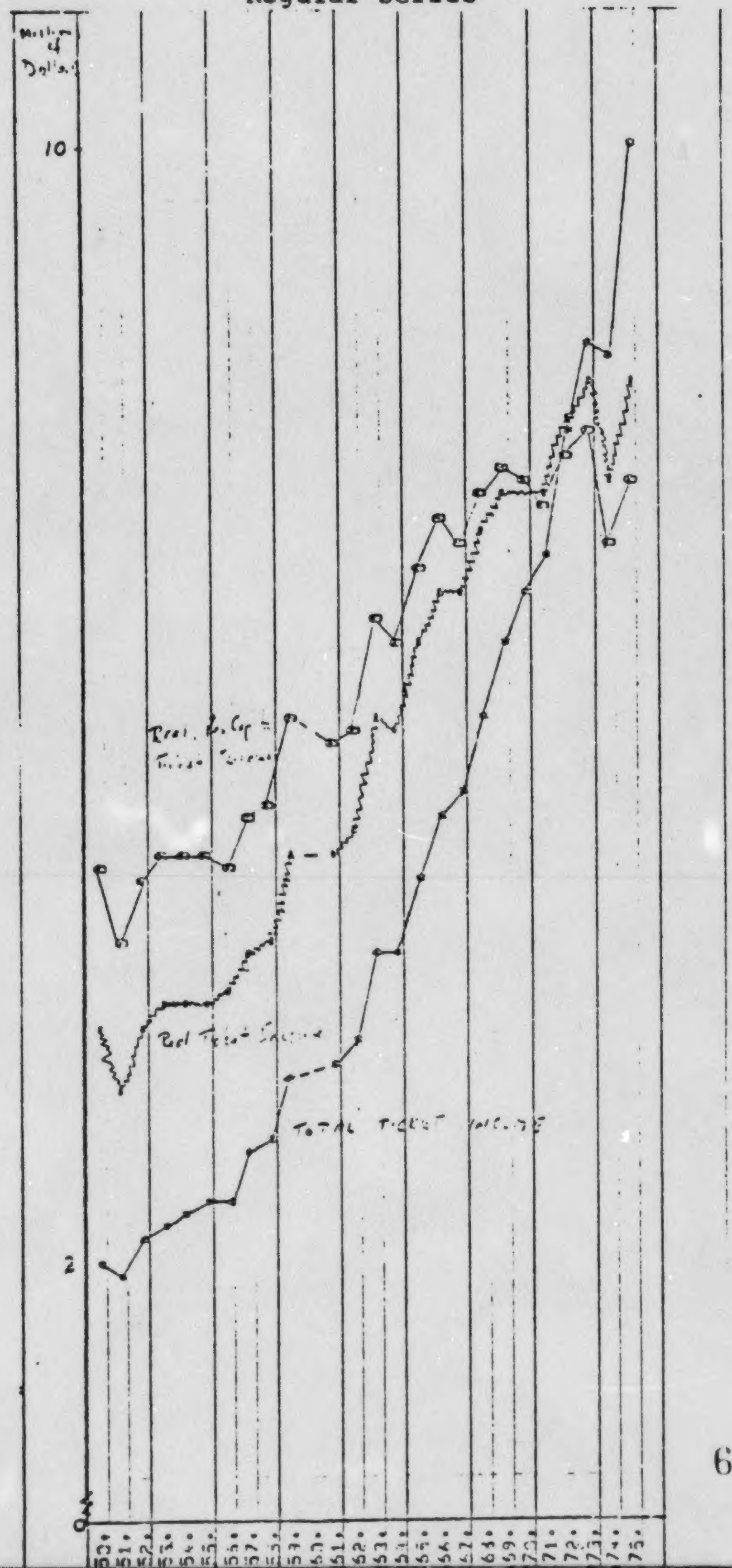


Figure III-12

Admissions vs. Real Average Ticket Price

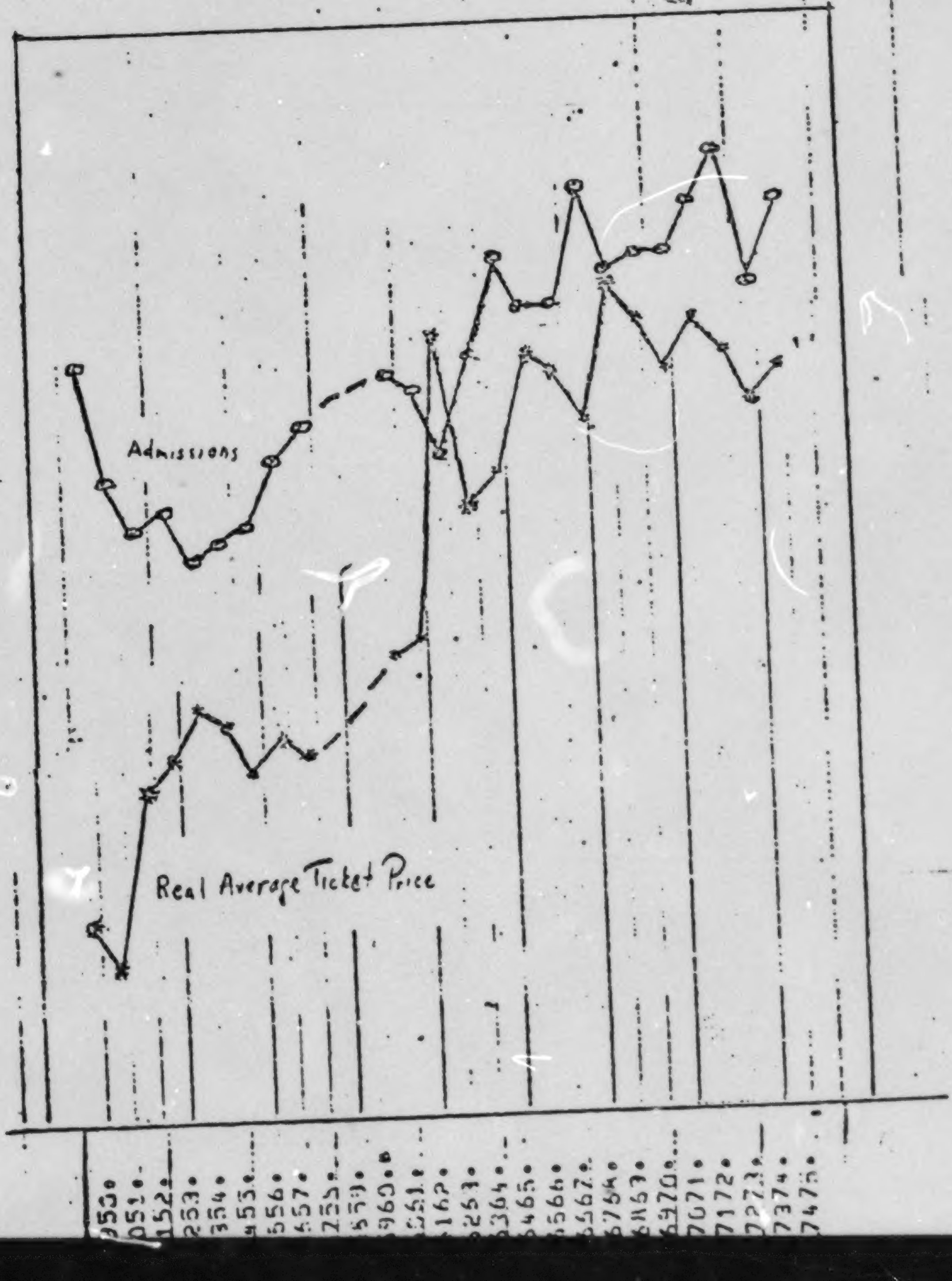
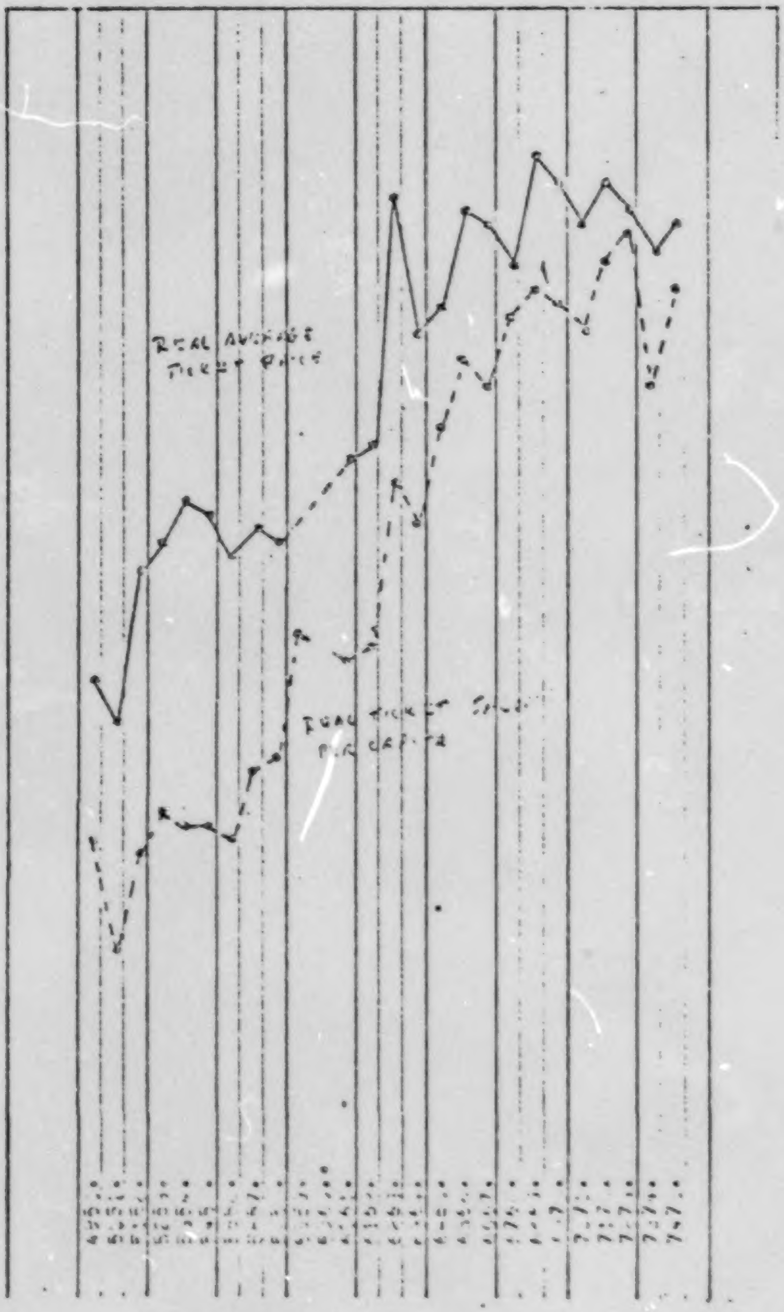


Figure III-13

Real Average Ticket Price
vs. Real Ticket Income Per Capita



decreasing and leveling off, thereafter steadily increased with fluctuations yielding several peaks and troughs, slowing down during the last five years.

(2) The real average price of tickets increased during the first half of our period, then leveled off during the second half with large fluctuations arising as a result of a sharp increase in nominal prices, then dropping for two years as inflation decreased the real value of that price, followed by another sharp increase in prices.

(3) Real ticket income per capita was steadily increasing, then leveling off during the past decade, with constant fluctuation.

(4) If we place real average ticket prices with admissions per capita on one graph, it is seen that the one is virtually a mirror image of the other,* save for a pattern of a secular increase in admission per capita throughout.

(5) If we now do the same with real ticket income per capita, the latter is a carbon copy of real average ticket price save for a constant rise in income throughout, a direct result of the constant increase in admissions.

(6) We really should also look at the number of concerts for the regular series since this could affect the number of admissions. However, the data on this item is completely unreliable, with orchestras shifting concerts from one classification to another in different years and with a change in the reporting

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*One notable exception is the '73-'74 season, where admissions decreased despite a fall in real average price--which apparently is a result of a strike at the New York Philharmonic, causing the cancellation of more than one-quarter of the regular concerts.

form beginning with the '70-'71 season. Looking at the data on the individual orchestras, there appears to have been a slight increase in this series during the second half of the period. This could have been a direct result of the secular rise in admissions and, at the same time, could have also partially aided this rise.

It is clear from the data that as the real price of tickets increases, the number of admissions decreases but not by enough to decrease real income. Thus, if the price of a ticket increases, with the price level constant, real--and of course, money--income increases. If, on the other hand, the price of a ticket remains constant and the price level increases, thus reducing the real price of a ticket, the number of admissions will increase --thus increasing money income--but not by enough to increase real income. It appears, then, that the demand for regular series tickets is inelastic with respect to the price of tickets.

Concerning the secular rise in the number of admissions, we believe it to be due to rising disposable personal income. It is also, possibly, due to shifting demand with increasing education. However, we believe the bulk of the increase to be due to the former.

Digression

Before we go on to the regressions, let us digress for a moment to see whether we have not artificially created the results obtained by our construction of the ticket price. Since we constructed the average ticket price by dividing ticket income by the number of admissions, is it not possible that when, for some reason, people bought more expensive tickets, it would incrase total ticket income, and hence, our average price, thus making it appear that income increased as a result of a price increase while, actually, the reverse is true. We discount this possibility for two reasons: (a) it implies that the number of admissions always decreased at exactly the same time that the demand for more expensive tickets increased and (b) the demand for expensive tickets always increased at three year intervals, then leveled off for two years -- precisely the pattern of price change. Since the chance of both of these events occurring simultaneously is extremely small, we can ignore the possibility. A similar agrument holds for the possibility that when admissions decrease, it is the cheapest ticket buyers who leave first.

C. The Regression Results

Because the series of real ticket revenue and price do not simply follow a steadily increasing trend but rather fluctuate greatly, we now can apply regression analysis. We first deflate equation (2) of Chapter II by P, so that it now becomes:

$$\underline{r} = r(\underline{C}, \underline{Pa}, \underline{DPI}, \underline{W}) = U_r \qquad (\underline{2})$$

where C is a constant and the sub-bars indicate that the variables are now in real terms.

There are several problems with this formulation: (1) It is only valid if the supply -- the number of concerts -- is constant. Otherwise we have a misspecified equation. As we previously indicated, the data on the number of concerts for the subscription series are unreliable. Fortunately, the number of these regular season concerts has changed only slightly and thus will not seriously affect our results. (2) A serious problem of multicollinearity exists, as is evident from Table III-3. (3) Even if we get the ordinary least-squares (OLS) estimator of equation (2), and we obtain results consistent with our expectations, the error terms are serially correlated (Tables III-4 - III-5).

While we can not get rid of the first problem, and, as we indicated, it is not too serious, we can do so for the latter two problems by using first-differences. The problems of serially correlated error terms and multicollinearity have disappeared, although the introduction of the real wage introduces some significant correlation (Table III-6).

Tables III-3 - III-11 give a description of our variables and the regression results. They show that the demand for regular series tickets is inelastic: as real ticket prices increase, real revenue also increases. In addition, there was a small, statistically insignificant, annual increase in revenue, whether we used real disposable personal income or a constant term.

Although our price-variable is only an estimate of the real average ticket price (see page 25), the high significance of the results makes us confident that similar results would be obtained with the true price. Though we should not take the

6 17

Table III-3

THE VARIABLES

RINPC (DEPENDENT VARIABLE): real regular series ticket income per capita of 14-and-over population

PRDP: real average regular series ticket price

RDPIC: real disposable personal income per capita of total population

RWG: real average gross weekly earnings (total private nonagricultural)

SUMMARY STATISTICS

	MEAN	STANDARD DEVIATION
PRDP	3.8322	.4967
RDPIC	478.8474	77.1949
RWG	121.7251	11.5004

CORRELATION MATRIX

	PRDP	RDPIC	RWG
COL	1	2	3
ROW			
1	1.0000	.8604	.9439
2	.8604	1.0000	.9394
3	.9439	.9394	1.0000

Table III-4

```
SMPL VECTOR
   1   9  12  26

ORDINARY LEAST SQUARES

VARIABLES...

        RINCPC
        C
        PROP
        ROPIC

MEAN OF DEPENDENT VARIABLE IS       .0439

INDEPENDENT          ESTIMATED             STANDARD                T-              MEAN OF
 VARIABLE            COEFFICIENT           ERROR                STATISTIC          VARIABLE

C                    -.01726066            .00269840           -6.39662266        1.00000000

PROP                  .01054316            .00144997            7.27130127        3.70048811

ROPIC                 .00004519            .00000958            4.71555042      471.98193159

    R-SQUARED =    .9645

    DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)     1.2909

    NUMBER OF OBSERVATIONS =    24

    SUM OF SQUARED RESIDUALS =            .6330735E-04

    STANDARD ERROR OF THE REGRESSION =            .173627E-02

    ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

      .728E-05   -.221E-05    .258E-07
     -.221E-05    .210E-05   -.121E-07
      .258E-07   -.121E-07    .918E-10
```

Table III-5

```
SMPL VECTOR
   1   9  12  36

ORDINARY LEAST SQUARES

VARIABLES...

      RINCPL
      C
      PROP
      ROPIC
      RNG

MEAN OF DEPENDENT VARIABLE IS      .0439

INDEPENDENT        ESTIMATED          STANDARD             T-               MEAN OF
 VARIABLE          COEFFICIENT        ERROR                STATISTIC        VARIABLE

C                  -.02113086         .00580464           -3.64034176       1.00000000

PROP               .00921630          .00228755            4.02889252       3.78048011

ROPIC              .00003816          .00001343            2.84091377     471.98193359

RNG                .00010123          .00013404             .75523758     120.56723022

   R-SQUARED =    .9656

   DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)    1.2291

   NUMBER OF OBSERVATIONS =   24

   SUM OF SQUARED RESIDUALS =          .615519E-04

   STANDARD ERROR OF THE REGRESSION =          .175431E-02

   ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

     .337E-04   .674E-05   .503E-07  -.647E-06
     .674E-05   .523E-05   .395E-08  -.235E-06
     .503E-07   .395E-08   .180E-09  -.125E-08
    -.647E-06  -.235E-06  -.125E-08   .180E-07
```

Table III-6

THE VARIABLES

The variables are the first-differences of the variables in Table III-3.

SUMMARY STATISTICS

	MEAN	STANDARD DEVIATION
DPRDP	.0501	.2364
DRDPIC	9.9453	6.6390
DRWG	1.3094	1.6258

CORRELATION MATRIX

	DPRDP	DRDPIC	DRWG
COL	1	2	3
ROW			
1	1.0000	-.1580	.2135
2	-.1580	1.0000	.3839
3	.2135	.3839	1.0000

Table III-7

```
SMPL VECTOR
    2    9   13   26

ORDINARY LEAST SQUARES

VARIABLES...

        DRINPC
        C
        DPROP
        DROPIC

MEAN OF DEPENDENT VARIABLE IS        .0008

INDEPENDENT              ESTIMATED              STANDARD                       T-              MEAN OF
 VARIABLE                COEFFICIENT            ERROR                     STATISTIC            VARIABLE

C                        .00010973              .00077635                  .14133495            1.0000000

DPROP                    .00780075              .00180231                 4.32819366            .0500999

DROPIC                   .00002513              .00006418                  .39163059            9.9453150

    R-SQUARED =    .4976

    DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)     2.3159

    NUMBER OF OBSERVATIONS =    22

    SUM OF SQUARED RESIDUALS =              .706268E-04

    STANDARD ERROR OF THE REGRESSION =             .192800E-02

    ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

      .603E-06   -.344E-06   -.419E-07
     -.344E-06    .325E-05    .183E-07
     -.419E-07    .183E-07    .412E-08
```

Table III-8

```
SMPL VECTOR
   2   9  13  26

ORDINARY LEAST SQUARES

VARIABLES...

       DRINPC
       DPROP
       DRDPIC

MEAN OF DEPENDENT VARIABLE IS        .0008

INDEPENDENT            ESTIMATED             STANDARD                     T-             MEAN OF
 VARIABLE              COEFFICIENT           ERROR                   STATISTIC           VARIABLE

DPROP                  .00786345             .00170350              4.61605072           .05009.99

DRDPIC                 .00003276             .00003391               .96609455          9.94531.50

R-SQUARED =     .4971

DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)    2.3154

NUMBER OF OBSERVATIONS =   22

SUM OF SQUARED RESIDUALS =          .707011E-04

STANDARD ERROR OF THE REGRESSION =          .188017E-02

ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

  .290E-05   -.538E-08
 -.538E-08    .115E-08
```

Table III-9

```
SMPL VECTOR
   2  9  1[illegible]  96

ORDINARY LEAST SQUARES

VARIABLES...

      DRINPC
      C
      DPROP

MEAN OF DEPENDENT VARIABLE IS       .0008

INDEPENDENT            ESTIMATED              STANDARD                     T-                  MEAN OF
 VARIABLE              COEFFICIENT            ERROR                   STATISTIC                VARIABLE

C                      .00036528              .00041161               .88743526               1.00000100

DPROP                  .00768924              .00174160              4.41504097                .05009199

  R-SQUARED =   .4936

  DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)    2.2967

  NUMBER OF OBSERVATIONS =   22

  SUM OF SQUARED RESIDUALS =          .711969E-04

  STANDARD ERROR OF THE REGRESSION =          .188675E-02

  ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

   .169E-06   -.152E-06
  -.152E-06    .303E-05
```

Table III-10

```
SMPL VECTOR
   2   9  13  26

ORDINARY LEAST SQUARES

VARIABLES...

        DRINPL
        DPROP

MEAN OF DEPENDENT VARIABLE IS        .0008

INDEPENDENT         ESTIMATED            STANDARD              T-                  MEAN OF
 VARIABLE           COEFFICIENT          ERROR                 STATISTIC           VARIABLE

DPROP                .00801684            .00169339             4.73418617          .05009.99

R-SQUARED =    .4736

DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)     2.2083

NUMBER OF OBSERVATIONS =    22

SUM OF SQUARED RESIDUALS =          .740005E-04

STANDARD ERROR OF THE REGRESSION =          .187719E-02

ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

  .287E-05
```

Table III-11

```
SMPL VECTOR
   2  9 11 56

ORDINARY LEAST SQUARES

VARIABLES...

        DRINPC
        C
        DRCRP
        DROPIC
        DRAT

MEAN OF DEPENDENT VARIABLE IS      .0008

INDEPENDENT        ESTIMATED          STANDARD            T-               MEAN OF
 VARIABLE          COEFFICIENT        ERROR               STATISTIC        VARIABLE

C                  .00010822          .00079924           .13540143        1.00000000
DRCRP              .00778355          .00194148          4.00907612         .05009699
DROPIC             .00002420          .00007314           .33086932        9.94531250
DRAT               .00000590          .00030188           .02947056        1.30935069

  R-SQUARED =   .9977

  DURBIN-WATSON STATISTIC (ADJ. FOR  1 GAPS)    2.3127

  NUMBER OF OBSERVATIONS =   22

  SUM OF SQUARED RESIDUALS =          .206234E-04

  STANDARD ERROR OF THE REGRESSION =          .198079E-02

  ESTIMATE OF VARIANCE-COVARIANCE MATRIX OF ESTIMATED COEFFICIENTS

     .639E-06   -.234E-06   -.424E-07   -.154E-07
    -.234E-06    .377E-05    .378E-07   -.176E-06
    -.424E-07    .378E-07    .535E-08   -.956E-08
    -.154E-07   -.176E-06   -.956E-08    .911E-07
```

numbers seriously, in order to get a feel for the degree of inelasticity, the results indicate that a 1% increase in real price increases real revenue by approximately .8 of 1%, a rather low elasticity.

IV. Contributions

A. Trends in the Components of Contributions

Contributions to an orchestra consist of income from several components:

(1) Regular Maintenance Fund Campaign.

(2) Special Fund Raising Activities.

(3) Endowments (and other investments).

(4) Grants.

FiguresIII-14 - III-17 reveal:

(1) The total of all contributions (real per-capita) rose very slightly during the first decade, at a quicker pace beginning with 1960-1961, more rapidly after 1964, and then at a precipitous rate beginning with 1966-1967, finally leveing off after 1970-1971 and dropping the last year.

(2) The last decade was heavily influenced by the enormous growth in income from endowments, as a result of the Ford Foundation Symphony Program (see page 84 for details).

(3) While income from the Regular Maintenance Fund Campaign shows a steadily increasing path with no fluctuation, that from Special Fund Raising Activities exhibits constant fluctuation. Specifically, the fluctuations are related to fluctuations in last year's deficit -- i.e., when there is a big deficit, the orchestras mount a major campaign of special projects -- and, in recent years, they appear to be responding to the current deficit.

(4) Real contributions per capita to the Regular Maintenance Fund were relatively stable in the first decade, then

Figure III-14

Total Contributions

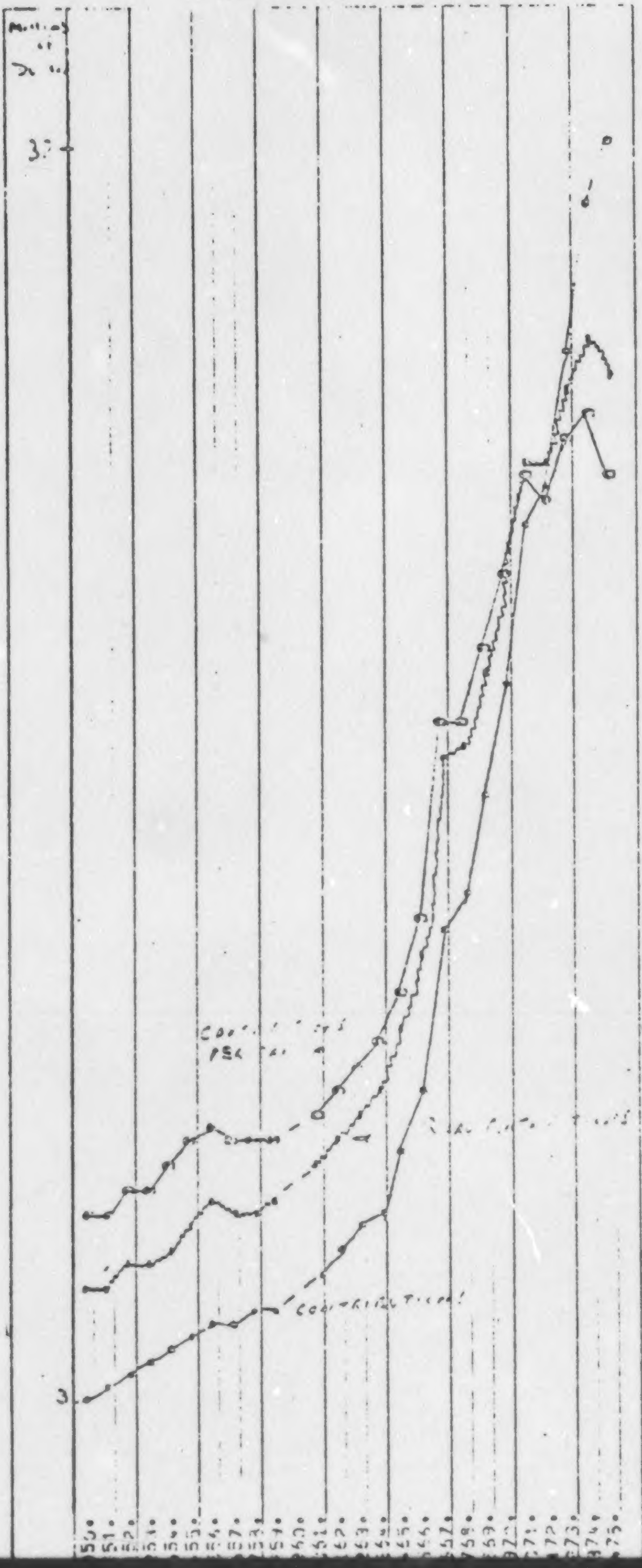


Figure III-15

Income from Endowments

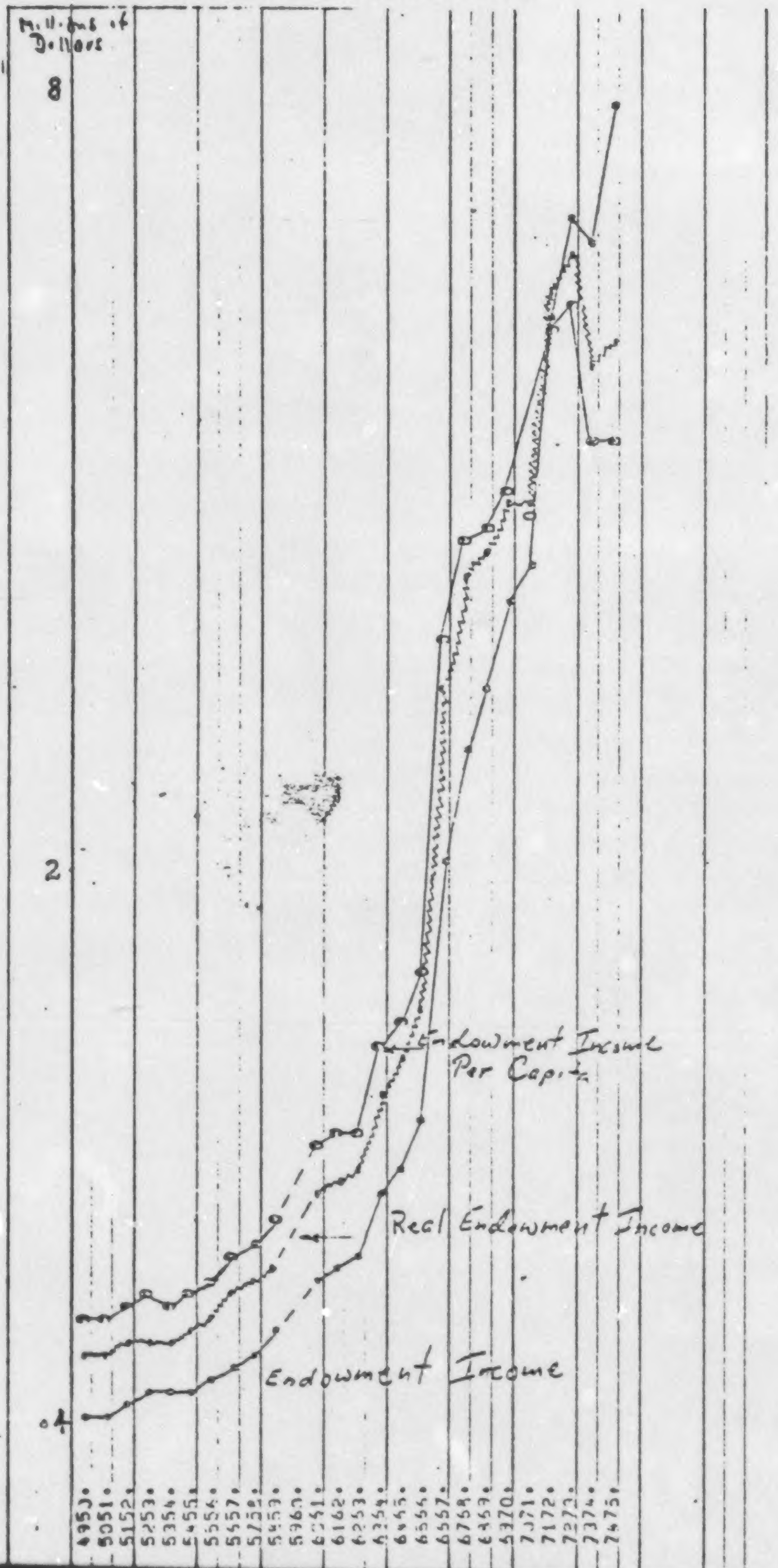


Figure III-16

Regular Maintemance Fund Campaign Contributions

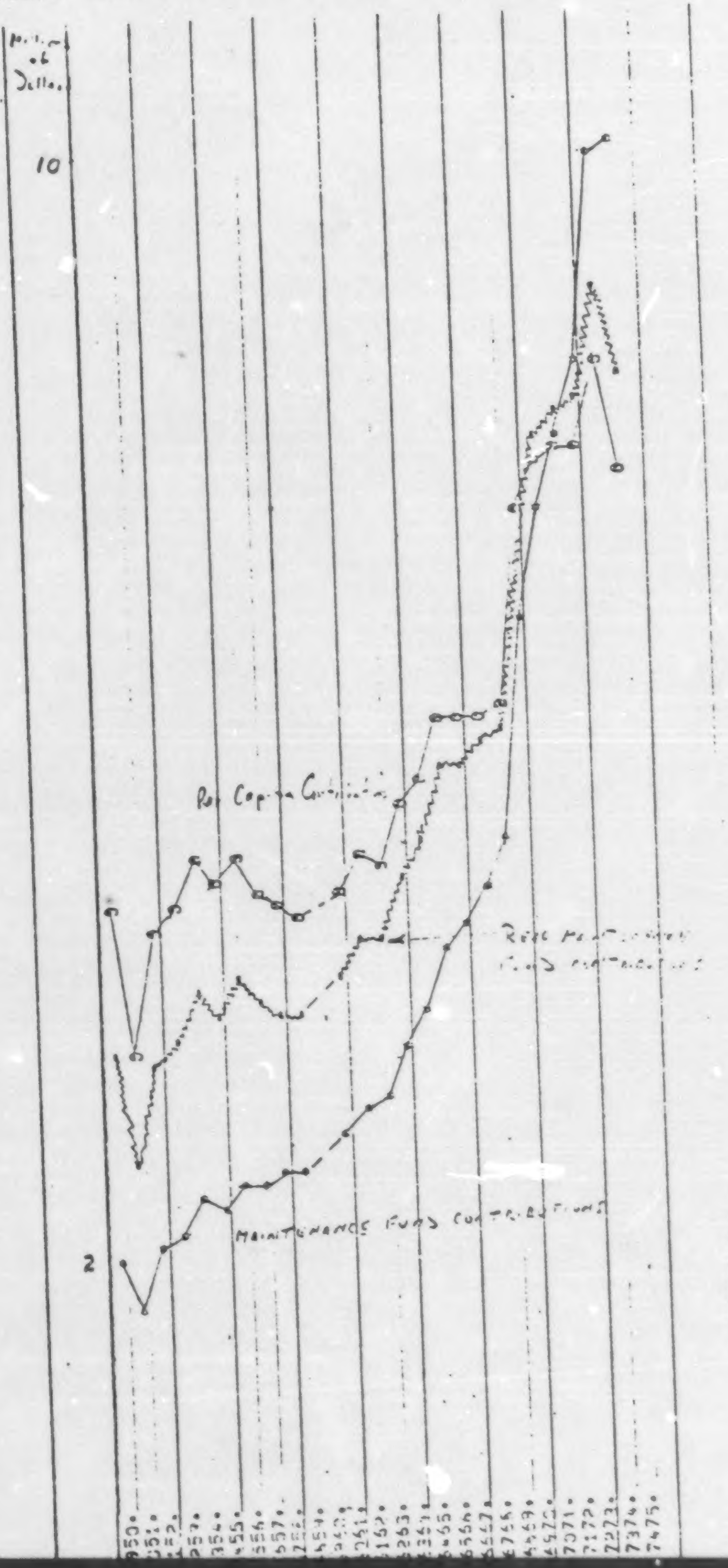
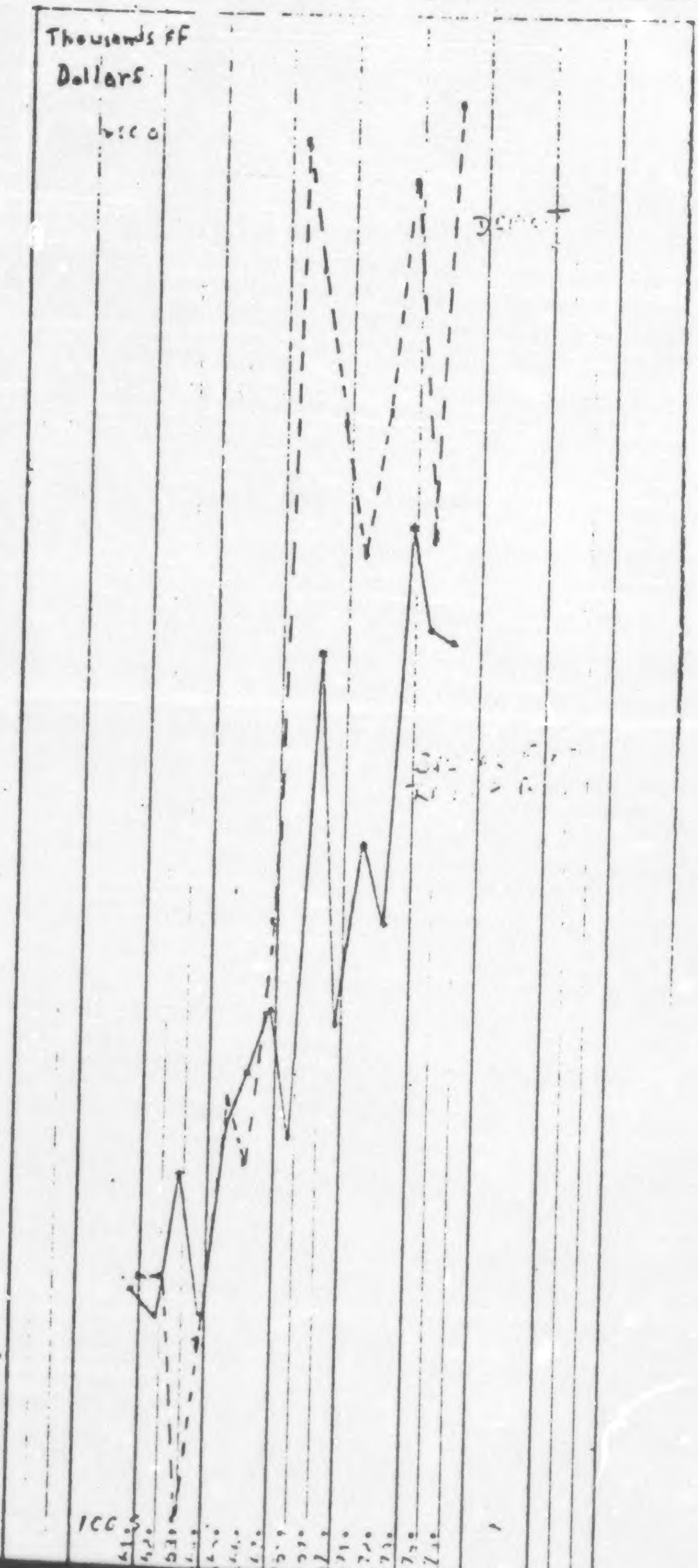


Figure III-17

Special Fund Raising Projects and the Deficit



began to increase in the early 1960's, leveled off for three seasons beginning with 1966-1967 and finally increased to a much higher level in the 1969-1970 season.

As we stated in Chapter II, we can not analyze income from endowments and grants because of lack of theory in this field, and hence we will only try to analyze the first two components. Having shown that income from special fund raising projects is directly influenced by deficits, we now go on to our task of explaining regular contributions.

B. Regular Maintenance Fund Contributions

Our first question, in analyzing regular contributions is, naturally, how have they varied relative to the total amount of philanthropy of this type in the economy?

Figure III-18 shows the regular contributions to the orchestras as a percentage of total philanthropy decreasing steadily during the 1950's, then leveling off, increasing beginning with the 1963-1964 season and rising to a new level in the 1969-1970 season. Obviously, as total philanthropy was increasing over this period, real contributions per-capita remain relatively constant during the first decade, begin to increase only in the early 1960's, at first on par with the increases in total philanthropy, then at a greater rate. Finally, in 1969-1970 contributions drastically increased to a new level after four years of constant real contributions per capita.

The recent increase can not be attributed solely to changes in the tax law or to other exogenous variables, since orchestra

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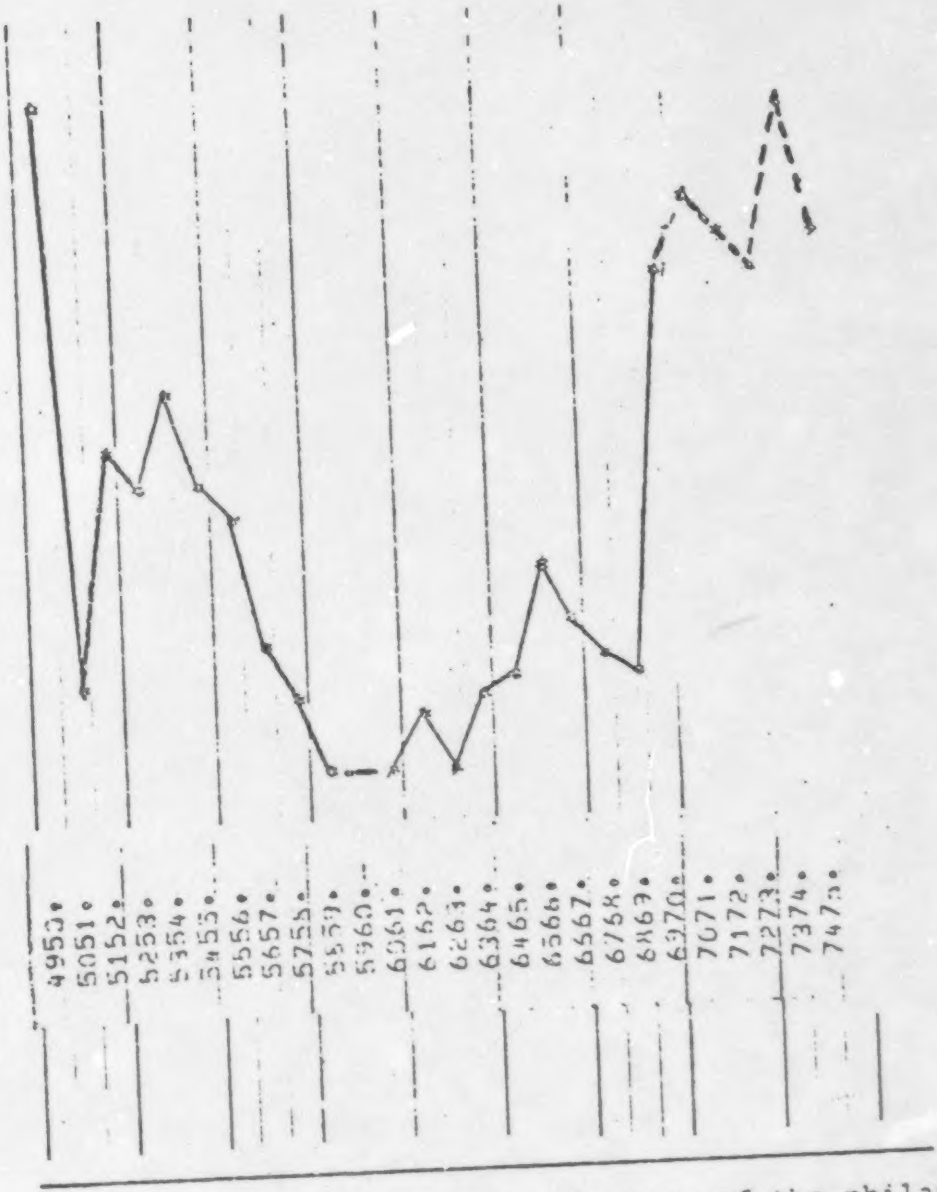
Figure III-18

Regular Maintenance Fund Contributions
as a Per Cent of Total Philanthropy



For an explanation of the derivation of the philanthropy series see Appendix A, Table III-18 contributions relative to total philanthropy also increased sharply. We must defer an explanation of the behavior of contributions until our later interpretation of the behavior of the entire system. In order to do so, however, we must first turn to the Ford Foundation Symphony Program which plays a key role in our analysis.

C. The Ford Foundation Symphony Program

The single most important event in the financial history of symphony orchestras was the Ford Foundation Symphony Program, whose actual date of commencement was July 6, 1966. The Foundation committed over 80 million dollars to major and metropolitan orchestras; about $59 million, to be held as endowment trusts until 1976 and to be released to the orchestra if it raised an agreed upon sum by 1971 to be held in an endowment trust until 1976, and about $21 million in expendable grants and development grants over the period 1966-1971. Because the orchestras were required to obtain matching funds, then, as Hart pointed out: "...not counting the income from the trust itself the Ford Foundation either donated or generated over $165 million of symphony funds."*

V. The Simultaneous Determination of the Entire System

Now that we have seen all the individual trends, we can take a look at the determination of the behavior of the entire system. We have seen that labor has a direct hand in determining the amount of output through the determination of the number of

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* Hart, p. 341.

pay periods. This, in turn, sets the level of expenditures, given the input prices. In addition, the musicians play a key role in determining the price of the largest input: the wage rate per-period. Thus, in order to determine total expenditures, we must look at the determination of the two dimensions of artistic wages: the rate-per-period and the number of periods. While the prices of other inputs are primarily exogenously determined (save for the wages of non-artistic personnel), artistic wages are endogenously determined, viz. they are affected by financial conditions in the orchestras. Hence, in order to analyze the determination of wages we must also look at the other side of the coin: income to the orchestras.

This immediately brings us to the long-standing question of whether labor presses its demands even in the absence of an expected increase in income. This was especially raised with regard to the tremendous wage increases of the 1960's while in mid-1966 the Ford Foundation began its huge symphony program. Because the two events occurred almost simultaneously, it can be argued that the Ford Foundation grants set off the huge increases in wages. On the Other hand, some argue that although the grants further stimulated player demands, these rising demands existed even in the absence of the Ford grants. We could point to the increases before 1966 to support this point. To obtain a fuller understanding, we must know the exact timing of the events and also look at what happened before and after the immediate period.

Although the Ford Symphony Program was not announced until July 6, 1966, there was a long planning stage -- according to one reliable source at the Foundation, at least three years -- during which period it became known to the orchestras and players that such a program was in the planning. Hence, the salary increases in the preceding two years were arranged with the expectation of funding. In addition, it was pointed out by an observer of the arts that the early 1960's was, generally, a period of high expectations brought on by the Kennedy Administration and a belief in a "cultural boom."

It is our belief that no matter how strong player demands are, they will not be met unless there is an equal increase in the supply of funds. A current case in point is that of New York City. Even the most powerful unions had to cut back their demands when the city was on the verge of bankruptcy. So long as the unions are aware of a supply -- or expected supply -- of funds, they will press their demands. The expected supply need not be a definite source of funds, simply the expectation that somehow their demands will always be met, as was the behavior in New York City. However, once the supply of funds dries up, unions will necessarily taper their demands rather than force the orchestra to close down, which is precisely what has happened in recent years. After the Ford Foundation program started, labor further pressed its demands, driving the ratio of player/manufacturing salary higher and higher. Yet, after driving it to a level which could not be maintained, the ratio dropped back to its 1968-1969 level, as the real average salary leveled off.

If increases in expenditures can maintain themselves only if there is an increase in income, how can income be increased? Given the inelasticity of demand, ticket revenue can be increased by increasing ticket prices. However, because ticket income is only a part -- and an increasingly smaller part -- of total income and because arts organizations hesitate to raise prices so as not to decrease admissions, increases in ticket income alone can only support a small increase in expenditures. This then brings us to contributions: specifically, can the orchestras influence contributions and, thus, have another "instrument" in balancing the budget or are contributions determined elsewhere and treated by the orchestras as a "given" variable, outside their influence?

It is clear that pre-1960 the orchestras as a whole did not attempt to increase the level of orchestra contributions relative to total philanthropy. Rather, they treated contributions, more or less as a deus ex machina -- whatever came, they took -- even though they were able to increase them as they later proved, especially post-1966. How, then, did they balance their budgets?

For the first decade, real wages went up only slightly, the relative position of orchestra players declining. Ticket prices went up at a rate far exceeding that of the rise in the price-level, and because of the inelasticity of demand, admissions decreased only slightly and, hence, ticket receipts increased at a rate also exceeding that of the price-level. In addition, there was a secular increase in admissions. The goal was a zero-deficit budget and, indeed, this was more or less attained. Note the fluctuations of surpluses and the deficits around the zero-level in Figure III-2. This level seems to have been maintained through unusually large ticket price increases and small wage increases, rather than by increasing the solicitation of funds.

Then came the 1960's: grant income increased, union power increased, and there were rising expectations. Wage rates and length of season began increasing, by 1963-1964 attaining their original relative level. But it was not until even greater expectations and its realization -- that of the Ford Program -- that wages began skyrocketing. The program affected the orchestras in several ways. During the next decade: (1) a full season was attained by almost all of our seventeen orchestras; (2) the relative weekly wage rate increased to a new high level; (3) the fund-raising mechanism was further developed so that not only endowment income was increased (as a result of the growing endowment corpus) but also the regular maintenance fund contributions incrased greatly relative to toal philanthropy. This was triggered by the Ford Foundation requiring matching endowment funds during the first five years of the program. For this reason, it was not until 1969-1970 that relative contributions increased, since for the first three years much of the increased contributions went to the endowment corpus rather than for operating expenditures. Even after the matching funds period was over, the machinery was in place, with new sources of contributions opened; (4) a new goal was set for the level of total deficit: about $2 million (figure III-2). Rather than striving for a zero-deficit level, with an increased endowment corpus they now sought to balance their budgets over the very long run.

The orchestras had now reached a new level of operation and, as a result, a much larger income gap and a continuous annual deficit. Because the ASOL data do not contain any information on how the orchestras funded the deficit, we again turn to the Ford Foundation data on the twelve largest orchestras which give the amount of corpus principal used for operations:

Table III-12

CORPUS PRINCIPAL TRANSFERRED TO OPERATIONS

TWELVE LARGEST SYMPHONIES

1965-1966	285,850
1966-1967	1,011,335
1967-1968	1,453,408
1968-1969	1,664,416
1969-1970	1,575,912
1970-1971	1,177,372
1971-1972	2,390,741
1972-1973	2,236,489
1973-1974	1,300,714

It is apparent that the major orchestras dipped heavily into their endowment corpus to meet the deficit. Having set the deficit level at about $2 million, how did they balance their budgets up to this deficit: (1) Real ticket prices were stable during this period and, hence, real ticket income. This was possibly due to two reasons: (a) ticket prices could not outrace the spiraling inflation; (b) since ticket income was becoming an ever smaller part of the total income, orchestras relied less on increased ticket prices to meet the tremendously increasing expenditures. (2) The level of regular contributions was increased, including special fund raising projects to meet unexpected deficits. In addition, there was the increased endowment income and, also, increased grant income. (3) After relative weekly wages increased to too high a level -- as a result of unmet expectations -- they dropped back to their 1968-1969 level, as real wages leveled off.

It appears that the 1960's began with increasing wage pressure forcing increased solicitation of contributions (in addition to an increase in unsolicited funds) and huge ticket price increases. This was followed by expectations of and realization of the Ford Foundation funds which mandated a huge increase in the level of funds solicited and raised the endowment income. This further increased the wage pressure which was no longer being met by increased ticket income -- real ticket prices and, hence, income remained relatively constant -- but rather by the increased contributions as well as by dipping into the now larger endowment principal in order to fill the deficit.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

I. Summary and Conclusions

In the last chapter, we applied our very general model of Chapter II to the major orchestras. We now want to summarize our main findings and also draw some inferences for arts organizations in general.

We have seen that the demand for regular series orchestra tickets is very inelastic. We do not know if this is the case in general; in fact, we cannot even be certain it is the case for non-regular-series orchestra tickets. In order to find out, we must study the individual art forms and, here, we must beware of the "fallacy of composition," for some of the evidence which indicates an elastic demand curve for other art forms such as a British study of ticket prices* and an experiment by the State Theater in Cleveland** deal with individual firms' demand curves. It does not necessarily follow that the industry demand is also elastic since if an individual firm lowers its ticket prices, it will attract customers from competing organizations of the same art form while if all the firms lower prices together, there is no switching between firms.*

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* *Report of the Committee of Enquiry Into Seat Prices*, Arts Council of Great Britain, 1973.

** *Low-Price Shows Enliven a Section of Cleveland, Raising Hopes for Awakening Other Downtowns*, The Wall Street Journal, April 13, 1977.

While any findings about consumer demand are specific to the particular art form under study, other findings about the behavior of the firm and its artists are of a more general nature. We have seen that unions will directly affect wages and output if, and only if, there is a supply of income to fund the increase in expenditures. At the same time, we have seen that the firms can directly affect the amount of contributions by increasing their solicitation of funds.

Here we should note a problem which is a general problem of advertising. We know that orchestras could, and indeed did, increase their contributions, but we do not know if it was at another art form's expense. Suppose that all the art forms were forced to increase their level of contributions; would they then show an increase as well? Obviously, what is true if one firm increases its solicitation of funds is not necessarily true if all the firms do so together. Thus, if we are interested in the condition of all the arts, we must look at all of them simultaneously.

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* This is the general economic rule that demand for the whole is always less elastic than the demand for any of its components.

We also saw that over our period, despite phenomenal increases in the weekly salary of players, the percentage of total expenditures going to artistic personnel has decreased rather than increased, which we attributed to differential economies of scale. Although increases in fringe benefits, which were virtually non-existent during the earlier years, have offset a great part of this decrease, these economies have nevertheless kept down the rise in expenditures.

We now turn to a problem of immense importance to government planners in funding the arts, namely, can a permanent income to the arts be created by setting up an unrestricted endowment fund? We have witnessed such an experiment and can now draw conclusions. The goals of the Ford Foundation for its symphony program were twofold: to raise the salary and condition of musicians and to provide a permanent income -- from the endowments -- on which the orchestras could rely. While the former was attained, what happened to the latter? Our seventeen orchestras have been reducing their endowment funds by about two million dollars annually for close to a decade. If this rate continues, the funds created by the Ford Foundation will be depleted in the not-too-distant future, leaving the orchestras with the same endowment funds as in 1966. Thus, it appears, that rather than being used as a source of permanent income, the endowment is being treated as a fund to be divided amongst X number of years in order to fill the deficit.

II. Future Research and Data Requirements

We have set up a framework for analyzing the behavior of arts firms and applied it to the major orchestras, which can serve as a model for the study of other arts forms. But yet more can be done even with our data base. As we indicated in Chapter III, a more correct wage-rate can be calculated if we consider the number of services required per week. Also, we can get a more correct measure of output if we use the adjustments which we indicated. Contributions can also be further analyzed but this requires first a theory of philanthropy in general. Finally, we can analyze the behavior of the individual organizations where, for example, expenditures sometimes do decrease and derive information which gets hidden in aggregation. One can then go on to study the behavior of the smaller orchestras drawing again on the rich data of ASOL.

To study the other art forms one needs data containing at least the variables we have used for the orchestras. The only comprehensive data base is that of the Ford Foundation which, although containing some of the most minor details, lacks one of the key variables required: the wage-rate. Since it is so valuable a data base, an effort should be made at rendering it more usable by constructing a wage series from other sources, even though it might be costly. Since the period covered is so recent, it is our belief that such an effort would be successful, at least for the larger organizations. Only then can the finances of these art forms be analyzed along the lines we used for the major orchestras, which includes taking into consideration all the institutional phenomena. The latter would be more time-consuming for other art forms which do not have as developed a literature as do the major orchestras.

For a new data base, we would recommend, as a minimum for purposes of analysis along our lines, the variables we used from the ASOL data. In addition, one would want a series of prices such as the Ford Foundation has -- low-price, high-price, etc. -- which would enable a correction of the average "realized" price and, thus, produce a more correct average price; likewise, with wages.

It is apparent that a highly-detailed data base is more desirable than one with less details, even if not absolutely necessary. Often, details, which themselves are not required, are used to verify other data which are an absolute necessity, as we had a chance to do several times during the course of our study. Or, sometimes, more details are needed to clarify questions arising about a trend in the total, as we did when we turned to the Ford data to find out more about the components of non-artistic-personnel costs. These benefits have to be weighed, however, against the additional costs.

There is one recommendation we would like to make here, which often gets overlooked. This is a result of our experiences with data in general and the arts data, in particular. Just as important as the number of variables covered is the correctness of the data. In the arts, for example, the admissions figure is probably the most unreliable figure; yet we have no knowledge of the magnitude of the error involved. Are the errors systematic or random? The same is true of the other variables. We would recommend that, as part of the design of any new data base, there be included a provision for sample checks of the data. For example, one could estimate the bias of the admissions data, if there is one, by getting an actual count of the number of admissions to a sample of organizations and checking that against the figures submitted by those organizations. Such estimates of the errors involved are beneficial in two ways: (1) they could sometimes lead to improvement in the collection of the actual data and (2) they would allow the researcher to make allowances for the errors when making use of the data.

II. An Approach to Forecasting

Although the limited nature of this study does not allow us to forecast, we nevertheless want to outline a method of forecasting based upon our newly acquired knowledge. We propose a system of "informed" extrapolation, i.e., extrapolation of past trends, with adjustments for our "expectations" of the future which are based on our "prior knowledge" of the system. To illustrate, let us outline our approach to forecasting for the major orchestras.

The last decade brought our seventeen major orchestras to a new state of affairs with:

(1) an annual total deficit of about two million dollars;
(2) a full season for nearly all the orchestras;
(3) the average weekly salary of regularly employed players at about 1.9 times that of workers in manufacturing;
(4) real ticket prices and income relatively stable;
(5) a higher level of contributions from all sources.

Ordinary extrapolation of past trends in expenditures, income and contributions, as has previously been done, would lead to projected figures for a decade from now which will probably not be attained for several decades, since the last decade was a period of unusual growth due to special circumstances and not expected to continue. If we now use our "prior knowledge," we get an entirely different picture.

The first thing to note is that with a full season, the wage bill can go up only through an increase in the wage rate, thus limiting the range of possible increases in expenditures. In the absence of any new influx of funds of great magnitude, the weekly salary can take one of two possible roads, both of which have been present for the recent years: either remain at the present relative level or simply keep the same real wages. If the latter is the case, real prices and, hence, real ticket income, are likely to remain constant as well as real contributions and the constant deficit. If, however, the relative level of wages is to be maintained, either real prices or contributions would have to increase or the deficit would increase. However, (1) relative contributions have already reached such a high level, it is harder to increase them much further; (2) ticket revenue covers a much smaller percentage of expenditures so that managers are reluctant to raise real ticker prices; and (3) with a constantly decreasing endowment principal, managers will become more reluctant to deplete it even further. Consequently, there will be great pressure for players to only maintain their real wages. Hence, one would have two forecasts for the two possible trends in wages if one can project future increases in the price-level and manufacturing wages, assuming no new great inflow of funds. Then, one would have a forecast of wages assuming that government contributes a new flow of funds. Likewise, one would forecast the other variables.

The forecaster would then have at his disposal a series of conditional forecasts. Each of these forecases would be ranked by the probability of its happening, these probabilities being subjective, of course, in the same way as that of the "weather" forecaster. Similarly, these probabilities would change from time to time based upon new information on expectations for the future. This would require what one observer called a "resident" forecaster who would be well-versed not only in forecasting know-how and past trends but also in the most recent occurrences and "rumors" in the particular art form.

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APPENDIX A

This appendix contains the basic data for the figures in Chapter III and, therefore, all of the ASOL data which we used. A complete discussion of the ASOL data will be found in Chapter II, Section B1. The tables have the same numbers as the corresponding figures.

Table III-1

	GROSS EARNED INCOME*	GROSS EXPENDITURES	EARNINGS GAP
1949-1950	5,240,227	8,193,383	2,953,156
1950-1951	4,978,066	8,210,729	3,232,663
1951-1952	5,176,700	8,567,724	3,391,024
1952-1953	5,935,244	9,439,221	3,503,977
1953-1954	5,806,488	9,582,730	3,776,242
1954-1955	5,895,859	10,103,456	4,207,597
1955-1956	6,267,481	10,651,218	4,383,737
1956-1957	6,579,056	11,127,656	4,548,600
1957-1958	7,056,116	11,710,881	4,654,765
1958-1959	7,846,210	12,745,476	4,899,266
1959-1960	-	-	-
1960-1961	8,502,340	14,504,619	6,002,279
1961-1962	8,790,030	15,286,599	6,496,569
1962-1963	9,548,061	16,096,887	6,548,826
1963-1964	10,141,031	17,590,528	7,449,497
1964-1965	11,476,139	20,594,880	9,118,741
1965-1966	13,537,240	24,057,840	10,520,600
1966-1967	15,380,116	30,440,560	15,060,444
1967-1968	16,666,274	33,905,328	17,239,040
1968-1969	18,079,264	37,506,880	19,427,616
1969-1970	20,138,480	42,059,536	21,921,056
1970-1971	21,895,232	47,253,200	25,357,968
1971-1972	24,193,600	50,846,896	26,653,296
1972-1973	25,353,360	55,563,152	30,209,792
1973-1974	26,163,584	59,317,824	33,154,240
1974-1975	31,905,936	67,377,296	35,471,360

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* This includes all earned income other than from grants for services required.

Table III-2

Deficit

1949-1950	138,287
1950-1951	192,060
1951-1952	9,956
1952-1953	20,243
1953-1954	4,741
1954-1955	29,867
1955-1956	-136,439
1956-1957	-28,677
1957-1958	-79,209
1958-1959	9,636
1959-1960	-
1960-1961	312,481
1961-1962	303,649
1962-1963	-151,407
1963-1964	198,192
1964-1965	664,608
1965-1966	537,312
1966-1967	1,011,024
1967-1968	2,498,256
1968-1969	2,247,760
1969-1970	1,962,848
1970-1971	1,714,368
1971-1972	1,983,536
1972-1973	2,429,184
1973-1974	1,730,560
1974-1975	2,569,120

Deficit is expenditures less income from all sources. Thus, a negative figure indicates a surplus.

Table III-3

Average Length of Season

1949-1950	26.1
1950-1951	26.2
1951-1952	26.4
1952-1953	26.1
1953-1954	26.4
1954-1955	26.8
1955-1956	27.5
1956-1957	27.5
1957-1958	27.7
1958-1959	27.8
1959-1960	-
1960-1961	29.6
1961-1962	30.2
1962-1963	30.7
1963-1964	31.3
1964-1965	34.3
1965-1966	38.1
1966-1967	41.1
1967-1968	43.8
1968-1969	45.2
1969-1970	46.3
1970-1971	47.5
1971-1972	48.2
1972-1973	48.8
1973-1974	49.1
1974-1975	49.0

A weighted average, the weights being each orchestra's expenditures.

Table III-4

Players' Average Weekly Salary

1949-1950	-	-
1950-1951	-	-
1951-1952	112.18	194.64
1952-1953	116.32	199.04
1953-1954	119.52	201.60
1954-1955	123.75	205.10
1955-1956	126.15	203.66
1956-1957	129.44	202.38
1957-1958	137.51	209.81
1958-1959	140.17	209.87
1959-1960	-	-
1960-1961	149.85	217.25
1961-1962	157.50	225.27
1962-1963	164.91	232.04
1963-1964	171.48	237.67
1964-1965	180.72	245.83
1965-1966	199.14	263.62
1966-1967	207.66	266.61
1967-1968	224.11	277.38
1968-1969	239.30	282.71
1969-1970	257.23	288.89
1970-1971	274.50	292.99
1971-1972	289.20	295.07
1972-1973	305.58	296.79
1973-1974	328.43	295.72
1974-1975	346.28	285.53

Obtained by dividing the total wage bill for players regularly employed by the number of players.

Table III-5

Average Weekly Earnings in Manufacturing

1949-1950	56.10	105.62
1950-1951	60.83	109.69
1951-1952	65.25	113.21
1952-1953	68.81	117.75
1053-1954	70.48	118.88
1954-1955	73.09	121.15
1955-1956	77.24	124.70
1956-1957	80.18	125.37
1957-1958	82.15	125.34
1958-1959	85.48	127.99
1959-1960	88.99	130.68
1960-1961	91.03	131.98
1961-1962	94.45	135.09
1962-1963	98.09	138.02
1963-1964	101.30	140.40
1964-1965	105.25	143.17
1965-1966	109.93	145.53
1966-1967	113.62	145.87
1967-1968	118.70	146.92
1968-1969	126.01	148.87
1969-1970	131.62	147.82
1970-1971	138.08	147.38
1971-1972	148.56	151.58
1972-1973	160.37	155.76
1973-1974	171.23	154.18
1974-1975	182.95	150.86

Obtained by averaging the annual figures over each two year figure. Source: Table B-34 Economic Report of the President, 1977.

Table III-6

Ratio of Average Weekly Earnings of Players to that of Manufacturing

1949-1950	-
1950-1951	-
1951-1952	1.72
1952-1953	1.69
1953-1954	1.70
1954-1955	1.69
1955-1956	1.63
1956-1957	1.61
1957-1958	1.67
1958-1959	1.64
1959-1960	-
1960-1961	1.65
1961-1962	1.67
1962-1963	1.68
1963-1964	1.69
1964-1965	1.72
1965-1966	1.81
1966-1967	1.83
1967-1968	1.89
1968-1969	1.90
1969-1970	1.95
1970-1971	1.99
1971-1972	1.95
1972-1973	1.91
1973-1974	1.92
1974-1975	1.89

Table III-7

Expenditures on Regularly Employed Players
as Percent of Total Cost

1949-1950	-
1950-1951	-
1951-1952	52.4
1952-1953	49.0
1953-1954	50.8
1954-1955	50.3
1955-1956	49.6
1956-1957	48.9
1957-1958	49.7
1958-1959	47.1
1959-1960	-
1960-1961	47.8
1961-1962	48.4
1962-1963	50.8
1963-1964	45.8
1964-1965	47.6
1965-1966	48.7
1966-1967	44.8
1967-1968	46.7
1968-1969	46.9
1969-1970	46.2
1970-1971	44.9
1971-1972	44.6
1972-1973	43.7
1973-1974	44.6
1974-1975	41.3

Table III-8

Average Number of Concerts Per Season

1949-1950	104.1
1950-1951	111.7
1951-1952	125.1
1952-1953	180.4
1953-1954	175.9
1954-1955	107.4
1955-1956	114.9
1956-1957	131.8
1957-1958	166.6
1958-1959	187.3
1959-1960	101.3
1960-1961	120.5
1961-1962	136.6
1962-1963	177.6
1963-1964	101.3
1964-1965	117.5
1965-1966	149.0
1966-1967	179.0
1967-1968	104.3
1968-1969	-
1969-1970	164.8
1970-1971	181.7
1971-1972	107.3
1972-1973	127.6
1973-1974	164.6
1974-1975	181.7

A weighted average, the weights being each orchestra's expenditures.

Table III-8A

Expenditures and Output

	TOTAL EXPENDITURES	OUTPUT	OUTPUT ADJUSTED FOR LENGTH OF SEASON
1951-1952	8,567,724	18,753,120	34,451,760
1952-1953	9,439,221	20,150,240	37,443,936
1953-1954	9,582,730	20,035,888	36,808,352
1954-1955	10,103,456	20,676,784	32,237,856
1955-1956	10,651,218	21,205,968	37,399,616
1956-1957	11,127,656	21,523,824	37,960,192
1957-1958	11,710,881	21,703,120	38,000,048
1958-1959	12,745,476	23,175,248	40,431,648
1959-1960	-	-	-
1960-1961	14,504,619	25,084,480	41,101,264
1961-1962	15,286,599	25,587,472	41,228,992
1962-1963	16,096,887	26,089,152	41,215,760
1963-1964	17,590,528	27,720,368	42,953,296
1964-1965	20,594,880	31,267,248	44,211,712
1965-1966	24,057,840	34,176,176	43,505,104
1966-1967	30,440,560	41,669,392	49,171,920
1967-1968	33,905,328	43,729,936	48,422,432
1968-1969	37,506,880	45,663,184	48,996,992
1969-1970	42,059,536	48,060,608	50,344,272
1970-1971	47,253,200	50,887,648	51,958,960
1971-1972	50,846,896	52,123,024	52,447,440
1972-1973	55,563,152	54,030,656	53,698,544
1973-1974	59,317,824	53,590,832	52,936,000
1974-1975	67,377,296	56,919,104	56,338,288

Output is expenditures divided by (.6 x Wage-index) + (.4 x price-level) standardized to 1 in 1972. It is then divided by a length-of-season index to obtain the last figure.

Table III-9

Total Number of Admissions

Regular Series

	ADMISSIONS	PER CAPITA*
1949-1950	1,301,865	1,735,989
1950-1951	1,215,774	1,605,533
1951-1952	1,186,505	1,551,162
1952-1953	1,212,047	1,568,905
1953-1954	1,170,622	1,500,207
1954-1955	1,197,689	1,518,156
1955-1956	1,234,967	1,546,660
1956-1957	1,318,495	1,628,468
1957-1958	1,364,041	1,661,843
1958-1959	-	-
1959-1960	-	-
1960-1961	1,463,718	1,706,515
1961-1962	1,486,831	1,701,672
1962-1963	1,437,188	1,617,884
1963-1964	1,558,763	1,726,830
1964-1965	1,690,649	1,842,964
1965-1966	1,673,947	1,794,829
1966-1967	1,694,311	1,786,062
1967-1968	1,856,921	1,924,218
1968-1969	1,795,444	1,829,380
1969-1970	1,840,081	1,842,834
1970-1971	1,882,126	1,852,135
1971-1972	1,959,947	1,895,637
1972-1973	2,054,528	1,954,300
1973-1974	1,936,279	1,812,380
1974-1975	2,066,392	1,902,704

NOTE: Also known as Regular Subscription Series. Because of the unreliability of admissions data, Baltimore and Chicago were deleted from this series.

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* In order to produce figures of comparable magnitudes, the per capita figures for this and subsequent tables are actually per 150 million of population, 14 years and over.

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Table III-10

Average Ticket Price

Regular Series

	TICKET PRICE	REAL
1949-1950	1.54	2.90
1950-1951	1.54	2.78
1951-1952	1.86	3.23
1952-1953	1.92	3.28
1953-1954	2.03	3.42
1954-1955	2.03	3.36
1955-1956	2.03	3.28
1956-1957	2.13	3.33
1957-1958	2.17	3.31
1958-1959	-	-
1959-1960	-	-
1960-1961	2.43	3.52
1961-1962	2.50	3.58
1962-1963	3.06	4.30
1963-1964	2.82	3.91
1964-1965	2.92	3.97
1965-1966	3.23	4.28
1966-1967	3.29	4.22
1967-1968	3.31	4.10
1968-1969	3.74	4.42
1969-1970	3.86	4.34
1970-1971	3.95	4.22
1971-1972	4.26	4.35
1972-1973	4.40	4.27
1973-1974	4.61	4.15
1974-1975	5.11	4.21

Obtained by dividing Income from Ticket Sales, Regular Series (Table III-11) by number of admission(Table III-9). This series is for only 15 orchestras (excluding Baltimore and Chicago). See note to table III-9.

Table III-11

Income from Ticket Sales

Regular Series

	TICKET INCOME	REAL	REAL PER CAPITA
1949-1950	2,001,921	3,769,032	5,025,868
1950-1951	1,867,286	3,367,210	4,446,688
1951-1952	2,201,765	3,820,187	4,994,274
1952-1953	2,329,069	3,985,403	5,158,808
1953-1954	2,381,422	4,016,906	5,147,855
1954-1955	2,428,786	4,025,502	5,102,612
1955-1956	2,509,053	4,050,780	5,073,156
1956-1957	2,808,705	4,391,347	5,423,738
1957-1958	2,956,372	4,610,790	5,495,602
1958-1959	3,424,729	5,127,608	6,158,969
1959-1960	-	-	-
1960-1961	3,559,638	5,160,767	6,016,820
1961-1962	3,712,287	5,309,716	6,076,951
1962-1963	4,404,564	6,197,501	6,976,706
1963-1964	4,399,601	6,097,853	6,755,328
1964-1965	4,934,502	6,712,240	7,316,965
1965-1966	5,407,069	7,157,890	7,674,788
1966-1967	5,571,654	7,153,235	7,540,600
1967-1968	6,144,894	7,605,539	7,881,174
1968-1969	6,718,279	7,937,007	8,086,527
1969-1970	7,110,950	7,986,244	7,998,195
1970-1971	7,437,014	7,937,896	7,811,410
1971-1972	8,341,065	8,510,423	8,231,179
1972-1973	9,042,997	8,783,026	8,354,556
1973-1974	8,930,489	8,041,142	7,526,606
1974-1975	10,567,858	8,713,966	8,023,695

This series is for only 15 orchestras. See note to Table III-9.

Table III-14

Total Contributions

	CONTRIBUTION	REAL	REAL PER CAPITA
1949-1950	2,814,869	5,299,575	7,066,791
1950-1951	3,040,603	5,483,011	7,240,784
1951-1952	3,381,068	5,866,345	7,669,294
1952-1953	3,483,734	5,961,216	7,716,352
1953-1954	3,771,501	6,361,647	8,152,752
1954-1955	4,177,730	6,924,226	8,776,953
1955-1956	4,520,176	7,297,670	9,139,529
1956-1957	4,577,277	7,156,469	8,838,931
1957-1958	4,733,974	7,223,031	8,799,990
1958-1959	4,889,630	7,320,902	8,793,420
1959-1960	-	-	-
1960-1961	5,689,798	8,249,076	9,617,409
1961-1962	6,192,920	8,857,787	10,137,706
1962-1963	6,700,233	9,427,654	10,612,983
1963-1964	7,251,313	10,050,330	11,133,964
1964-1965	8,454,134	11,499,879	12,535,937
1965-1966	9,983,301	13,215,917	14,170,288
1966-1967	14,049,430	18,037,520	19,014,288
1967-1968	14,740,810	18,244,704	18,905,904
1968-1969	17,179,856	20,296,352	20,678,688
1969-1970	19,958,208	22,414,880	22,448,416
1970-1971	23,643,600	25,235,984	24,833,856
1971-1972	24,669,760	25,170,656	24,344,752
1972-1973	27,780,608	26,981,952	25,665,664
1973-1974	31,423,680	28,294,336	26,483,840
1974-1975	32,902,240	27,130,272	24,981,152

Total Contributions,also referred to as Supplemental Income, includes:
(1) Grants -- including those for services required
(2) Income from endowments
(3) Regular Maintenance Fund Campaign
(4) Special Fund Raising Projects.

Table III-15

Endowment Income

	ENDOWMENT INCOME	REAL	PER CAPITA
1949-1950	383,194	721,442	962,017
1950-1951	407,007	733,941	969,232
1951-1952	466,846	810,004	1,058,949
1952-1953	499,590	854,877	1,106,574
1953-1954	490,532	827,413	1,060,369
1954-1955	542,020	898,351	1,138,724
1955-1956	593,591	958,332	1,200,206
1956-1957	695,857	1,087,956	1,343,730
1957-1958	778,163	1,187,310	1,446,527
1958-1959	855,835	1,281,382	1,539,117
1959-1960	-	-	-
1960-1961	1,170,605	1,697,144	1,978,661
1961-1962	1,266,940	1,812,115	2,073,959
1962-1963	1,319,850	1,857,112	2,090,604
1963-1964	1,674,700	2,321,136	2,571,402
1964-1965	1,875,266	2,550,862	2,780,676
1965-1966	2,148,920	2,844,745	3,050,174
1966-1967	3,732,428	4,791,923	5,051,417
1967-1968	4,389,552	5,432,951	5,629,848
1968-1969	4,749,617	5,611,220	5,716,926
1969-1970	5,259,198	5,906,558	5,915,396
1970-1971	5,513,029	5,884,331	5,790,567
1971-1972	6,988,680	7,130,579	6,896,611
1972-1973	7,613,771	7,394,888	7,034,137
1973-1974	7,421,300	6,682,246	6,254,663
1974-1975	8,255,556	6,807,305	6,268,068

Table III-16

Income from Regular Maintenance Fund Campaign

	TOTAL CONTRIBUTIONS	REAL	REAL PER CAPITA
1949-1950	2,126,526	4,003,627	5,338,692
1950-1951	1,706,943	3,078,069	4,064,853
1951-1952	2,247,757	3,899,986	5,098,599
1952-1953	2,422,342	4,145,008	5,365,405
1953-1954	2,686,630	4,531,721	5,807,615
1954-1955	2,656,087	4,402,234	5,580,147
1955-1956	2,875,429	4,642,282	5,813,948
1956-1957	2,831,167	4,426,465	5,467,112
1957-1958	2,892,155	4,412,809	5,376,230
1958-1959	2,926,582	4,381,767	5,263,110
1959-1960		-	-
1960-1961	3,238,733	4,695,519	5,474,398
1961-1962	3,541,443	5,065,357	5,797,283
1962-1963	3,561,729	5,011,579	5,641,679
1963-1964	4,015,109	5,564,947	6,164,964
1964-1965	4,313,597	5,867,643	6,396,276
1965-1966	4,937,881	6,536,778	7,008,823
1966-1967	5,129,215	6,585,205	6,941,810
1967-1968	5,473,547	6,774,612	7,020,133
1968-1969	5,849,840	6,911,029	7,041,221
1969-1970	7,889,721	8,860,875	8,874,134
1970-1971	8,840,683	9,436,102	9,285,743
1971-1972	9,520,301	9,713,602	9,394,880
1972-1973	10,140,680	9,849,153	9,368,673
1973-1974	11,973,836	10,781,416	10,091,536
1974-1975	12,099,567	9,976,971	9,186,652

Includes gifts from: (1) Individuals
(2) Business and Industrial Firms
(3) Labor Unions
(4) Individual, Business, Industrial and National Foundations.

Because of severe data problems, New York was deleted from this series.

Table III-17

Income From Special Fund Raising Projects

	SPECIAL PROJECTS	REAL	REAL PER CAPITA
1960-1961	290,677	421,424	491,328
1961-1962	246,137	352,052	402,922
1962-1963	509,338	716,671	806,767
1963-1964	232,304	321,974	356,689
1964-1965	599,828	815,926	889,435
1965-1966	703,701	931,561	998,833
1966-1967	822,368	1,055,807	1,112,981
1967-1968	594,301	735,567	762,225
1968-1969	1,522,686	1,798,908	1,832,796
1969-1970	810,178	909,904	911,265
1970-1971	1,149,473	1,226,889	1,207,339
1971-1972	996,428	1,016,660	983,301
1972-1973	1,753,686	1,703,270	1,620,177
1973-1974	1,566,690	1,410,670	1,320,404
1974-1975	1,528,277	1,260,175	1,160,351

This category only begins with 1960-1961

Table III-18

Contribution to Regular Maintenance Fund Campaign as a Per Cent of Total Philanthropy

1949-1950	.052*
1950-1951	.037
1951-1952	.043
1952-1953	.042
1953-1954	.044
1954-1955	.042
1955-1956	.041
1956-1957	.038
1957-1958	.036
1958-1959	.035
1959-1960	-
1960-1961	.034
1961-1962	.036
1962-1963	.034
1963-1964	.036
1964-1965	.037
1965-1966	.039
1966-1967	.038
1967-1968	.037
1968-1969	.037
1969-1970	.047
1970-1971	.049
1971-1972	.048
1972-1973	.047
1973-1974	.052
1974-1975	.048

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* The figure for Total Philanthropy is the total of all comparable philanthropy in the economy and is derived from Table III-18A by subtracting columns 402, 403 and 404 from the Total in column 398. The last 5 years were estimated based upon comparison between column 399 of Table III-18A and Table III-18B and projecting from the latter to the total.

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Table III-18-A

Series H 398-411. Private Philanthropy—Estimated Fund Flows, by Donors and Recipients: 1929 to 1970

[In millions of dollars]

Year	Philanthropy payments by donors							Philanthropy revenues of recipients						
	Total	Living donors	Charitable bequests	Corporation contributions	Foundation grants	Higher education endowment income	Hospital endowment income	Total	Religious organizations	Parochial schools	Higher education	Hospitals and health	Youth service, welfare, race relations	Other
	398	399	400	401	402	403	404	405	406	407	408	409	410	411
1970	19,211	14,004	2,087	797	1,460	668	225	18,052	6,854	1,422	2,487	2,400	2,050	2,839
1969	18,625	13,265	2,132	1,055	1,320	633	190	16,947	6,464	1,291	2,423	2,305	1,950	2,414
1968	17,374	12,495	1,927	1,005	1,200	680	167	15,985	6,283	1,293	2,265	2,080	1,825	2,239
1967	15,712	11,325	1,721	830	1,165	527	154	15,254	6,320	1,235	2,037	1,907	1,621	2,064
1966	14,660	10,612	1,515	805	1,100	485	143	14,011	5,937	1,239	1,982	1,685	1,484	1,884
1965	13,711	9,983	1,301	785	1,060	415	132	13,468	5,868	1,154	1,948	1,602	1,335	1,573
1964	13,011	9,316	1,164	729	1,042	408	122	12,552	5,273	1,203	1,786	1,546	1,298	1,448
1963	11,930	8,927	1,020	657	839	374	113	12,008	5,029	1,180	1,632	1,349	1,256	1,562
1962	11,277	8,376	875	695	780	345	105	11,295	4,835	1,120	1,456	1,246	1,218	1,420
1961	10,705	8,171	913	512	723	321	97	10,663	4,761	1,058	1,343	1,087	1,163	1,248
1960	10,394	7,891	931	482	677	303	90	9,996	4,550	993	1,232	947	1,108	1,166
1959	9,606	7,349	810	482	626	257	82	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1958	9,165	7,221	669	395	575	211	74	8,613	4,036	896	1,057	750	1,116	758
1957	8,693	6,652	602	417	740	218	66	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1956	8,136	6,338	531	418	699	159	58	7,537	3,497	801	936	900	900	503
1955	7,161	5,775	499	415	233	172	50	6,751	3,166	697	795	632	850	611
1954	6,478	5,346	393	314	219	157	44	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1953	6,339	5,101	355	495	164	146	38	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1952	5,779	4,772	324	399	110	138	32	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1951	5,238	4,344	301	343	107	117	26	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1950	4,546	3,782	274	252	105	113	20	4,429	1,962	428	447	515	685	392
1949	4,130	3,476	206	223	103	122		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1948	4,104	3,352	296	239	101	116		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1947	3,724	3,061	223	211	99	110		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1946	3,265	2,656	186	214	97	112		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1945	3,042	2,375	192	266	95	114		2,611	1,009	136	246	330	675	205
1944	2,842	2,208	202	234	93	105		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1943	2,637	2,106	186	159	91	95		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1942	2,160	1,672	155	98	89	95		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1941	1,721	1,307	175	58	87	94		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1940	1,436	1,078	143	38	85	92		1,212	612	115	179	56	150	100
1939	1,396	1,012	179	31	84	90		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1938	1,259	861	200	27	81	90		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1937	1,238	909	127	33	79	90		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1936	1,165	847	128	30	77	85		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1935	1,001	712	106	28	75	80		969	534	75	111	36	120	94
1934	1,001	679	146	27	74	75		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1933	868	602	96	27	73	70		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1932	1,010	646	191	31	72	70		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1931	1,102	692	220	40	71	79		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1930	1,211	833	223	35	70	84		1,474	787	153	210	97	167	60
1929	1,277	932	154	32	72	87		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

NA Not available.

Source: Historical Statistics of the United States, Colonial Times to 1970, Part 1, U.S. Department of Commerce, Washington, D.C., 1975.

Table III-18-B

Individual Giving

Year	Personal Income (billions)	Individual Giving (billions)	As % of P.I.	Disposable Personal Income (billions)	As % of D.P.I.
1965	$537.0	$9.23	1.72	$472.2	1.96
1966	584.9	10.53	1.80	510.4	2.06
1967	626.6	11.14	1.77	544.5	2.04
1968	685.2	12.60	1.83	588.1	2.14
1969	745.8	13.60	1.82	630.4	2.15
1970	801.3	14.40	1.79	685.9	2.09
1971	859.1	15.40	1.79	742.8	2.07
1972	942.5	16.84	1.78	801.3	2.10
1973	1,054.3	18.36	1.74	903.1	2.03
1974	1,154.7	19.80	1.71	983.6	2.01
1975	1,246.0	21.44	1.72	1,076.8	1.99

Source: U.S. Department of Commerce, Bureau of Economic Analysis
Revised, March, 1976

Source: Giving U.S.A., 1976 Annual Report, American Association of Fund-Raising Council, Inc., New York, 1976.

APPENDIX B

THE MUSEUM DATA

This appendix details some of our experiences with the museum data base which was prepared by Applied Management Sciences. Because the sole purpose of this appendix is to show why the data base is useless, at least in the absence of a complete re-editing, we do not want to belabor the issue by listing even more errors. It will suffice to document our first steps in analyzing the data which will show conceptual errors, inconsistency in the use of different categories and errors in transcribing the data.

We began by tabulating the different museums and years covered by the different variables. Out of the 23 variables, only three covered all museums: annual total income, total costs, and total grants, contributions and support. Here we noticed a problem -- minor relative to the other problems -- in that whether a museum used the fiscal year -- e.g., July 1, 1950 - June 30, 1951 -- or the calendar year, its data were added into the aggregate figure for the year 1950.

Our next step was to scan the aggregate data of the three previously-mentioned variables for any values outside the range of the other figures. We noticed that the total contributions figure for 1952 (Table 2) was almost twice the largest figure for the first decade of our period, 1947-1956. Since this figure is an aggregate of the data for the individual museums, we next went to the 1952 figures of this variable for the individual museums.

The first museum we looked at -- the American Museum of Natural History -- had a figure which was more than three times the largest figure for the first decade (Table 3). We next went to the components of total contributions and the error showed up in the figure for annual private contributions. In order to find out how this variable was obtained, we turned to the raw data for the previous two years.

Tables 4 and 5 reveal that the following five figures were used to obtain the total figure for private contributions for 1950 (Table 3):

$224,042	Gifts and Bequests to Endowment and Other Funds
123,735	Contributions of Trustees, Members and to General Funds
377,624	Contributions of Trustees, Members and to Special Funds
98,005	Contributions by Subscribing Members to Pension Funds
950,459	Contributions by Trustees and Others to Pension Funds
$950,459	

Tables 6 and 7 reveal that the following four figures were used to obtain the 1951 figure:

$133,039	Contributions of Trustees, Members and to General Funds
374,609	Contributions of Trustees, Members and to Special Funds
98,902	Contributions by Subscribing Members to Pension Funds
120,122	Contributions by Trustees and Others to Pension Funds
$726,672	

It is obvious that one variable -- that of gifts and bequests to the endowment and other funds -- was not used for 1951 although it was used for 1950. There is a more seriuos problem, of a conceptual nature: why were those particular five variables used to compute total private contributions? Leaving aside the question of whether contributions to capital funds should be aggregated together with contributions to be used for current expenditures, should funds paid by employees into their own pension funds be treated as contributions to the museum simply because the term "contributions" is used in the statement of pension funds?

If we use the same four variables for 1952 (from Tables 8 and 9) we obtain a total of $941,765. Adding the fifth variable, we obtain $1,168,603. Clearly, the figure given in Table 3 -- $4,905,713 -- is a serious error. As we stated at the outset, we need not proceed any further; more than enough has already been said.

Table 1

THE ANALYTICAL FILE FOR MUSEUMS' TIME SERIES

Code	Format	Character(s)	Field Definition	Source	Years
XID	1.0	1	Data ID, this ID will be (1) for museums' Time Series	--	---------
AGG	1.0	2	The level of aggregation for the data: (9) for the aggregate for all the museums, other aggregation schemes might be used in the future	--	---------
YEAR	2.0	3-4	The last two digits of the year of the data	--	1947-1974
V1	8.0	5-12	Total annual membership dues, in current dollars	FS	See List of Museums
V2	8.0	13-20	Revenue from programs, publications, services, films, ... etc., in current dollars	FS	See List of Museums
V3	8.0	21-28	Annual endowment and trust funds revenue, in current dollars	FS	See List of Museums
V4	8.0	29-36	Annual admission revenue: total admission charges, in current dollars	FS	See List of Museums
V5	10.0	37-46	Annual total income from all sources including grants and contributions, in current dollars	FS	See List of Museums
V6	10.0	47-56	Annual operations costs. This variable is annual total costs net of annual costs of publications, accessions, educational and special group programs and advertising where such components are identifiable, in current dollars	FS	See List of Museums
V7	8.0	57-64	Annual costs of publications, in current dollars	FS	See List of Museums
V8	8.0	65-72	Annual costs of accessions, in current dollars	FS	See List of Museums
V9	8.0	73-80	Annual costs of educational and special group programs, in current dollars	FS	See List of Museums
V10	10.0	81-90	Annual advertising costs, in current dollars	FS	See List of Museums
V11	10.0	91-100	Annual total costs, in current dollars	FS	See List of Museums
V12	10.0	101-110	General reserve fund, in current dollars	FS	See List of Museums
V13	10.0	111-120	Special reserve fund: deficit surplus fund, in current dollars	FS	See List of Museums
V14	10.0	121-130	Endowment fund, in current dollars	FS	See List of Museums
V15	10.0	131-140	Total funds, in current dollars. This might include funds other than the above	FS	See List of Museums
V16	10.0	141-150	The membership count for the year	FS	See List of Museums
V17	10.0	151-160	Annual total attendance	FS	See List of Museums
V18	4.0	161-164	The number of special exhibits for the year	FS	See List of Museums
V19	10.0	165-174	Annual private contributions, in current dollars. These are individual and/or corporate	FS	See List of Museums
V20	10.0	175-184	Annual state and local governments' grants and support, in current dollars	FS	See List of Museums
V21	10.0	185-194	Annual federal government's grants and support, in current dollars	FS	See List of Museums
V22	10.0	195-204	Annual foundations' grants, in current dollars	FS	See List of Museums
V23	10.0	205-214	Total grants, contributions and support for the year, in current dollars	FS	See List of Museums

Table 2

MUSEUM TIME SERIES--AGGREGATED MUSEUMS

```
7   V1  00112321   V2  02303199   V3  02346693   V4  00157872   V5  0007077815   V6  0004296647   V7  00026387   V8  00156785
    V9  00307098   V10 0000004086 V11 0000498161 V12 0003565185 V13 0000210834 V14 0011756030 V15 0030943190 V16 0000001516
   V17 0001183308  V18       0000 V19 0000227373 V20 0001638522 V21 0000000000 V22 0000040320 V23 0001932972

8       00222138       01237457       03486667       00168260       0009019212       0007600132       00074347       00226208
        00849841     0000078497     0004001233     0003709689       0000115777       0015735137     0024696553     0000001526
      0001185729           0000     0000855567     0002403312       0000000000       0000044984     0003464217

9       00247929       01855208       03760260       00184727       0010347527       0008769164       00042980       00108841
        01262749     0000117295     0010512115     0001870886       0000123181       0012485274     0011510620     0000001628
      0001210964           0011     0000667839     0003029662       0000000000       0000040379     0003896610

0       00402869       02369698       04651341       00393553       0013363553       0009093276       00480838       00322989
        01426599     0000019035     0012089556     0001903259       0000124001       0029534516     0011132974     0000014065
      0001670543           0008     0001764068     0003142464       0000000000       0000046578     0005127557

1       00431640       06025611       04637942       00195287       0016673466       0009921868       00409213       00211611
        01648987     0000019948     0012641041     0001895002       0000155716       0030470146     0011398025     0000017015
      0001790107           0000     0001373201     0003277083       0000000000       0000047394     0004703026

2       00475310       02371040       04876448       00275507       0018013328       0009771020       00452336       00197937
        01850203     0000043980     0013270935     0001903624       0000127253       0031891088     0011458549     0000017743
      0001845433           0000     0005582024     0003689141       0000000000       0000062937     0009548694

3       00529225       02171987       04898707       00243181       0016651146       0010157204       00458824       00302951
        01599897     0000051021     0013608906     0001901973       0000133473       0033030604     0011542952     0000019586
      0001750974           0035     0000704334     0003648734       0000035344       0000629950     0005243324

4       00573234       05037979       04865967       00323609       0015239016       0010181766       00422948       00274879
        01221600     0000052612     0013394366     0001888083       0000615769       0034681312     0026848551     0000023249
      0001874179           0040     0000933716     0003379705       0000027389       0000062962     0004661934

5       00650079       04985240       05205582       00349742       0015918312       0010740496       00512719       00350714
        01411016     0000025393     0014364311     0001914380       0000624091       0038262849     0031288565     0000001864
      0001118463           0036     0000877994     0003637611       0000036697       0000053517     0004851728

6       00667290       03176975       04691679       00276680       0010909366       0010284184       00056937       00200018
        01638631     0000050780     0013881048     0001931388       0000665215       0039281631     0013033109     0000001940
      0001145004           0026     0000968391     0003788066       0000034723       0000053857     0005054375

7       00703768       02656391       03689024       00436992       0015480752       0011795651       00071793       00151341
        01791843     0000048879     0015152768     0001958476       0000651921       0048204402     0013869045     0000001957
      0001210932           0000     0001256758     0003773571       0000000000       0000049281     0005326180

8       00785837       02547418       06124891       00725805       0017421800       0011561755       00082399       00070469
        02889588     0000197259     0016440789     0001976145       0000623552       0028578706     0034892233     0000003789
      0001178310           0000     0002328757     0004003719       0000000000       0000065156     0006703335

9       00809879       03236084       06411216       00992169       0018151044       0013001898       00087962       00084699
        03040737     0000191282     0017887394     0001975365       0000637937       0029341135     0035590025     0000213249
```

Table 3

MUSEUM TIME SERIES--INDIVIDUAL MUSEUMS

MERICAN MUSEUM OF NATURAL HISTORY

```
947     00057290    01929898    01164567    00123452  0004287723  0001969664    00000000    00000000
        00283904  0000002244  0002255812  0001349612  0000000000  0000000000  0019271311  0000000000
      0000000000        0000  0000122497  0000849699  0000000000  0000040320  0001012516

948     00061660    00657545    00788275    00136049  0003411302  0003224386    00000000    00000000
        00047080  0000074447  0003345913  0000000000  0000000000  0000000000  0000671685  0000000000
      0000000000        0000  0000731827  0000990962  0000000000  0000044984  0001767773

949     00060035    00739156    00860757    00154032  0003380589  0003074306    00000000    00000000
        00432057  0000106171  0003612534  0000000000  0000000000  0000000000  0000656802  0000000000
      0000000000        0000  0000526874  0000998356  0000000000  0000040379  0001565609

950     00056645    00867051    01418029    00000000  0004372533  0002816066    00421537    00000000
        00350152  0000000000  0003587755  0000000000  0000000000  0016284360  0000000000  0000000000
      0000000000        0000  0000950459  0001033771  0000000000  0000046578  0002030608

951     00050885    04868689    01082573    00000000  0007889036  0003312200    00349405    00000000
        00692560  0000000000  0004013634  0000000000  0000000000  0016688211  0000000000  0000000000
      0000000000        0000  0000726672  0001097280  0000000000  0000047394  0001871346

952     00044825    01164100    01132900    00000000  0008536862  0002793417    00405310    00000000
        00765221  0000000000  0003963948  0000000000  0000000000  0017353507  0000000000  0000000000
      0000000000        0000  0004905713  0001226387  0000000000  0000062937  0006195037

953     00043978    00786817    01048685    00000000  0006824517  0003012286    00370532    00000000
        00452373  0000000000  0003855191  0000000000  0000000000  0017612593  0000000000  0000000000
      0000000000        0000  0000000000  0001229334  0000000000  0000629950  0001859284

954     00044570    03574894    00964469    00000000  0005112171  0003231154    00375754    00000000
        00139525  0000000000  0003746433  0000000000  0000000000  0017871679  0000000000  0000000000
      0000000000        0000  0000000000  0001232281  0000000000  0000062962  0001295243

955     00043385    03609226    01054291    00000000  0005420118  0003418922    00462219    00000000
        00153378  0000000000  0004034519  0000000000  0000000000  0019109113  0000000000  0000000000
      0000000000        0000  0000000000  0001303851  0000000000  0000053517  0001357368

1956    00000000    01686632    00329675    00000000  0003331465  0003206623    00000000    00000000
        00210327  0000000000  0003416930  0000000000  0000000000  0020352384  0000000000  0000000000
      0000000000        0000  0000000000  0001261301  0000000000  0000053857  0001315158

1957    00000000    00993305    01066747    00000000  0003464005  0003458110    00000000    00000000
        00225163  0000000000  0003683273  0000000000  0000000000  0021820135  0000000000  0000000000
      0000000000        0000  0000000000  0001354672  0000000000  0000049281  0001403951

1958    00000000    00592440    01117015    00322820  0004095046  0002749657    00000000    00000000
        01235133  0000146269  0004171059  0000000000  0000000000  0000000000  0000000000  0000000000
      0000000000        0000  0000049461  0001360154  0000000000  0000065156  0002065771

1959    00000000    00993451    01146701    00340151  0004643303  0003061003    00000000    00000000
        01244045  0000157534  0004462582  0000000000  0000000000  0000000000  0000000000  0000000000
```

Table 4

STATEMENT OF ENDOWMENT AND OTHER FUNDS

for the year ended June 30, 1951

ne 30, 1950		$15,621,188.07
d bequests	$ 224,042.50	
it on sales and redemptions of investments	394,130.08	
from Special Funds	45,000.00	663,172.58
		16,284,360.65
:		
s to General Funds:		
ustodian fee, etc.	9,200.00	
spes: of operating deficits,		
neral Funds and Cafeteria,		
the year ended June 30, 1950	63,975.20	
opriation for Museum Building Program	250,000.00	323,175.20
Balance, June 30, 1951		$15,961,185.45

The accompanying notes are an integral part of this statement.

STATEMENT OF GENERAL FUNDS

for the year ended June 30, 1951

Income:			
Appropriations from the City of New York		$1,033,771.48	
Income from endowment and other funds		754,264.25	
Income from Planetarium Authority and temporary investments		21,375.00	
Portion of royalties from mining properties (Note 2)		50,000.00	
Income from outside trusts and foundations		46,578.07	
Income from bequests pending settlement		6,499.19	
Contributions of trustees, members and friends		123,735.40	
Membership dues		56,645.00	
Sales and services		90,776.45	
Other income		31,907.80	$2,215,552.64
Natural History Magazine		193,136.11	
Junior Natural History Magazine		83,442.94	
Man and Nature Publications		25,260.50	
Natural History Book Club		95,843.39	
Museum Shop		76,052.83	
Museum Cafeteria		102,436.68	576,172.45
			2,791,725.09
Expenses:			
Administrative and general	$553,292.77		
Care and use of collections, supervision and preparation of exhibitions, scientific publications and library	596,991.97		
Education	306,656.46		
Operation and maintenance of physical plant	859,879.75		
Exhibition Hall Rehabilitation	85,200.81	2,402,021.76	
Natural History Magazine	187,182.69		
Junior Natural History Magazine	101,723.78		
Man and Nature Publications	30,138.21		
Natural History Book Club	94,179.47		
Museum Shop	68,827.03		
Museum Cafeteria	107,706.84	589,758.02	2,991,779.78
Excess of expenses			200,054.69
Deduct:			
Transfer from special funds		$ 1,507.21	
Transfer from unrestricted funds functioning as endowment		9,200.00	
Transfers from funds appropriated by trustees:			
Exhibition Hall Rehabilitation Program		85,200.81	
Publications Program		8,315.41	104,223.43
			95,831.26
Deficit, General Funds and Cafeteria, balance, June 30, 1950		63,975.20	
Deduct, Transfer from unrestricted funds functioning as endowment		63,975.20	
Deficit, balance, June 30, 1951			$ 95,831.26

The accompanying notes are an intergral part of this statement.

Table 5

STATEMENT OF FUNDS APPROPRIATED BY TRUSTEES

for the year ended June 30, 1951

	Exhibition Hall Rehabilitation Program	Museum Building Program	Publications Program	Totals
, June 30, 1950	$920,967.16		$53,244.63	$ 974,211.79
Transfer from unrestricted ds functioning as owment		$250,000.00		250,000.00
	920,967.16	250,000.00	53,244.63	1,224,211.79
ct, Transfers to general funds:				
rehabilitation expenditures	85,200.81			85,200.81
excess of expenses over ncome of publications			8,315.41	8,315.41
	85,200.81		8,315.41	93,516.22
Balances, June 30, 1951	$835,766.35	$250,000.00	$44,929.22	$1,130,695.57

STATEMENT OF SPECIAL FUNDS

for the year ended June 30, 1951

June 30, 1950		$ 449,477.77
e from endowment and other funds	$ 67,235.08	
e from temporary investments	3,498.75	
ibutions of trustees, members and friends	377,624.11	
nd services	116,314.95	
income	1,325.43	565,998.32
		1,015,476.09
ures:		
nistrative and general	8,467.02	
nd use of collections, supervision of exhibitions, scientific lications and library	377,754.12	
tion	43,496.93	
tion hall rehabilitation	14,999.16	444,717.23
		570,758.86
:		
tricted funds functioning as endowment	45,000.00	
eral funds	1,507.21	46,507.21
Balance, June 30, 1951		$ 524,251.65

The accompanying notes are an integral part of this statement.

STATEMENT OF PENSION FUNDS

for the year ended June 30, 1951

Balances, June 30, 1950		$3,352,363.06
Income:		
Contributions by subscribing members	$ 98,005.36	
Contributions by trustees and others	127,053.30	
Income from investments	127,527.73	
Net profit on sales and redemptions of investments	43,852.51	
Reimbursement of prior year expenditure	200.00	396,638.90
		3,749,001.96
Expenditures:		
Payments to members and beneficiaries:		
Pension allowances	123,282.21	
Death benefits	1,874.46	
Refunds of contributions and interest thereon	22,778.61	
	147,935.28	
Expenses	3,324.68	151,259.96
Balances, June 30, 1951		$3,597,742.00

Table 6

STATEMENT OF ENDOWMENT AND OTHER FUNDS

for the year ended June 30, 1952

alance, June 30, 1951		$15,961,185.45
dditions:		
Gifts and bequests	$223,829.12	
Net profit on sales of investments	464,651.17	
Transfer from special funds	16,000.00	
Collection from Planetarium Authority on account of principal of promissory notes	22,545.62	727,025.91
		16,688,211.36
eductions:		
Transfers to general funds:		
For architects' services	46,809.56	
For custodian fee, etc.	7,991.94	
To dispose of operating deficits, general funds and cafeteria, for the year ended June 30, 1951	95,831.26	150,632.76
Balance, June 30, 1952		$16,537,578.60

he accompanying notes are an integral part of this statement.

STATEMENT OF GENERAL FUNDS

for the year ended June 30, 1952

Income:			
Appropriations from the City of New York		$1,097,280.04	
Income from endowment and other funds		751,815.99	
Income from Planetarium Authority and temporary investments		48,092.75	
Portion of royalties from mining properties (Note 2)		50,000.00	
Income from outside trusts and foundations		47,394.92	
Income from bequests pending settlement		3,953.51	
Contributions of trustees, members and friends		133,039.52	
Membership dues		50,885.00	
Sales and services		108,204.68	
Other income		3,484.98	$2,294,151.39
Museum enterprises:			
Natural History Magazine		212,592.79	
Junior Natural History Magazine		102,806.15	
Man and Nature Publications		25,303.15	
Natural History Book Club		10,419.31	
Museum Shop		103,018.41	
Museum Cafeteria		118,497.84	572,637.65
			2,866,789.04
Expenses:			
Administrative and general	$621,199.55		
Care and use of collections, supervision of exhibitions, scientific publications and library	603,244.15		
Preparation of exhibitions	41,821.27		
Education	327,463.73		
Operation and maintenance of physical plant	905,777.55	2,499,506.25	
Museum enterprises:			
Natural History Magazine	213,104.82		
Junior Natural History Magazine	111,561.94		
Man and Nature Publications	24,740.32		
Natural History Book Club	8,866.71		
Museum Shop	91,865.05		
Museum Cafeteria	119,876.24	570,015.08	3,069,521.33
Excess of expenses			202,732.29
Transfers from unrestricted funds functioning as endowment, to cover architects' services, custodian fee, etc., included above in administrative and general expenses		54,801.50	
Less, Transfer to appropriated fund available for promotion and development of Museum enterprises		2,622.57	52,178.93
			150,553.36
Deficit, general funds and cafeteria, June 30, 1951		95,831.26	
Less, Transfer from unrestricted funds functioning as endowment		95,831.26	—
Deficit, June 30, 1952			$ 150,553.36

The accompanying notes are an integral part of this statement.

Table 7

STATEMENT OF APPROPRIATED FUNDS

for the year ended June 30, 1952

	Available For		
	Promotion and Development of Museum Enterprises	Museum Building Program	Exhibition Hall Rehabilitation
Balances, June 30, 1951	$44,929.22	$250,000.00	$835,766.35
Transfer from general funds, representing excess of income of Museum enterprises	2,622.57		
	47,551.79	250,000.00	835,766.35
Transfers to special funds		250,000.00	61,706.25
Balances, June 30, 1952	$47,551.79	—	$774,060.10

STATEMENT OF SPECIAL FUNDS

for the year ended June 30, 1952

Balance, June 30, 1951 (less $22,280.77 overdrafts included in accounts receivable at that date)		$ 501,970.88
Income:		
Income from endowment and other funds	$ 69,848.69	
Income from temporary investments	3,667.50	
Contributions of trustees, members and friends	374,609.70	
Sales and services	92,780.07	
Other income	3,453.10	544,359.06
		1,046,329.94
Expenditures:		
Administrative and general	43,722.31	
Care and use of collections, supervision of exhibitions, scientific publications and library	394,527.36	
Preparation of exhibitions	3,799.92	
Education	15,692.03	
Exhibition hall rehabilitation	18,322.70	
	476,064.32	
Appropriated funds:		
Exhibition hall rehabilitation	57,471.99	
Museum Building Program	250,000.00	783,536.31
		262,793.63
Transfers from appropriated funds:		
Exhibition hall rehabilitation (including $4,234.26 in respect of prior year's expenditures)	61,706.25	
Museum Building Program	250,000.00	
	311,706.25	
Less, Transfer to funds functioning as endowment	16,000.00	295,706.25
Balance (net of overdrafts amounting to $35,784.75), June 30, 1952		$ 558,499.88

STATEMENT OF PENSION FUNDS

for the year ended June 30, 1952

Balance, June 30, 1951		$3,597,742.00
Income:		
✓ Contributions by subscribing members	$ 98,902.52	
/ Contributions by trustees and others	120,122.00	
Income from investments	128,142.70	
Net profit on sales of investments	31,009.69	378,176.91
		3,975,918.91
Expenditures:		
Payments to members and beneficiaries:		
Pension allowances	120,769.72	
Death benefits	610.79	
Refunds of contributions and interest thereon	35,782.96	
	157,163.47	
Custodian fees, etc.	3,413.73	160,577.20
Balance, June 30, 1952		$3,815,341.71

Table 8

STATEMENT OF ENDOWMENT AND OTHER FUNDS

for the year ended June 30, 1953

Balance, June 30, 1952			$16,537,578.60
Additions:			
Gifts and bequests		$226,838.67	
Net profit on sales of investments		589,089.98	815,928.65
			17,353,507.25
Deductions:			
Expenditures, for custodian fee		5,000.00	
Transfers to general funds:			
For honorariums and consultant fees	$ 9,602.64		
To dispose of general funds operating deficit for the year ended June 30, 1952	150,553.36	160,156.00	165,156.00
Balance, June 30, 1953			$17,188,351.25

The accompanying notes are an integral part of this statement.

STATEMENT OF GENERAL FUNDS

for the year ended June 30, 1953

Income:			
Appropriations from the City of New York		$1,226,387.86	
Income from endowment and other funds		764,019.18	
Income from Planetarium Authority and temporary investments		27,625.00	
Portion of royalties from mining properties (Note 2)		50,000.00	
Income from outside trusts and foundations		62,937.10	
Income from bequests pending settlement		358.90	
√ Contributions of trustees, members and friends		150,423.17	
Membership dues		44,825.00	
Sales and services		34,043.50	
Income from special educational activities		29,898.27	
Other income		6,823.39	$2,397,341.37
Museum enterprises:			
Natural History Magazine		273,649.01	
Junior Natural History Magazine		121,099.44	
Man and Nature Publications		36,836.99	
Museum Shop		141,471.34	
Museum Cafeteria		19,525.58	592,582.36
			2,989,923.73
Expenses:			
Administrative and general	$ 685,476.06		
Care and use of collections, supervision of exhibitions, scientific publications and library	601,938.98		
Exhibition and architecture	30,646.03		
Operation and maintenance of physical plant	1,000,465.19		
Public instruction	145,867.59		
Special educational activities	85,575.00	2,549,968.85	
Museum enterprises:			
Natural History Magazine	251,968.53		
Junior Natural History Magazine	118,409.74		
Man and Nature Publications	34,933.64		
Museum Shop	121,483.70		
Museum Cafeteria	19,908.39	546,704.00	3,096,672.85
Excess of expenses			106,749.12
Transfer from appropriated funds available for promotion and development of Museum enterprises		45,805.04	
Add, Transfer from unrestricted funds functioning as endowment to cover certain expenses included above		9,602.64	
		55,407.68	
Less, Appropriation provided for outstanding commitments		25,090.99	30,316.69
			76,432.43
Deficit, general funds, June 30, 1952		150,553.36	
Less, Transfer from unrestricted funds functioning as endowment		150,553.36	—
Deficit, June 30, 1953			$ 76,432.43

The accompanying notes are an integral part of this statement.

Table 9

STATEMENT OF APPROPRIATED FUNDS

for the year ended June 30, 1953

		Available For	
	Outstanding Commitments, General Funds	Promotion and Development of Museum Enterprises	Exhibition Hall Rehabilitation
Balances, June 30, 1952		$47,551.79	$774,060.10
Add:			
Appropriation from general funds for outstanding commitments at June 30, 1953	$25,090.99		
Adjustment of prior year's transfer to special funds			31,642.78
	25,090.99	47,551.79	805,702.88
Deduct:			
Transfers to special funds		1,746.75	24,029.62
Transfer to general funds to apply as reduction of current year's operating deficit		45,805.04	
		47,551.79	24,029.62
Balances, June 30, 1953	$25,090.99	—	$781,673.26

STATEMENT OF SPECIAL FUNDS

for the year ended June 30, 1953

Balance, June 30, 1952 (Note 5)		$ 558,499.88
Income:		
Income from endowment and other funds	$ 70,975.87	
Income from temporary investments	3,367.50	
✓ Contributions of trustees, members and friends	583,020.04	
Sales and services	87,644.93	
Other income	3,210.41	748,218.75
		1,306,718.63
Expenditures:		
Administrative and general	9,960.99	
Care and use of collections, preparation and supervision of exhibitions, scientific publications and library	469,476.02	
Exhibition and architecture	999.84	
Public instruction	2,188.18	
Special educational activities	126,281.57	
	608,906.60	
Exhibition hall rehabilitation	24,029.62	632,936.22
		673,782.41
Transfer to appropriated funds:		
Exhibition hall rehabilitation:		
Adjustment of prior year's transfer	31,642.78	
Less, Amount to cover expenditures made in current year	24,029.62	
	7,613.16	
Less, Transfer from promotion and development of Museum enterprises	1,746.75	5,866.41
Balance, June 30, 1953 (Note 5)		$ 667,916.00

The accompanying notes are an integral part of this statement.

STATEMENT OF PENSION FUNDS

for the year ended June 30, 1953

Balance, June 30, 1952		$3,815,341.71
Income:		
✓ Contributions by subscribing members	$ 95,206.37	
✓ Contributions by trustees and others	113,116.72	
Income from investments	145,467.55	
Net profit on sales of investments	71,089.57	424,880.21
		4,240,221.92
Expenditures:		
Payments to members and beneficiaries:		
Pension allowances	134,538.31	
Death benefits	1,493.20	
Refunds of contributions and interest thereon	53,516.80	
	189,548.31	
Custodian fees, etc.	3,945.74	193,494.05
Balance, June 30, 1953		$4,046,727.87